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ABSTRACT

As rural communities decline due to job losses in agriculture and other industries, they often aggressively court new industries. In such circumstances, a community should question what a proposed new industry will require in terms of infrastructure; the effects of the new labor force on schools, businesses, and housing; the impact on the environment; the types of jobs being created; and whether the industry is a good "fit" for the infrastructure and makeup of the community. Often in the rush to seek new industry, such questions go unasked or their answers are ignored. The result may still be jobs but quite possibly jobs that extract more out of a community than they give back. This paper examines Texas County, Oklahoma, for the costs and benefits associated with the coming of an industrial-style hog operation to the area. The research reveals that the true "cost" of a job in the hog industry to Texas County and Guymon, its largest community, is over 50 percent higher than the average wages paid to employees. These costs include: (1) economic costs, such as tax incentives, rebates, and land lease agreements; (2) human costs, including education and security issues; and (3) environmental costs, including air pollution, water and soil degradation, and other qualitative measures such as odor. The impact to Texas County schools included the need to build a new elementary school, increased numbers of limited-English-speaking students, and an increased dropout rate. (Contains extensive references in endnotes.) (Author/TD)

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Bringing Home the Bacon?

The myth of the role of corporate hog farming in rural revitalization

A Report to the Kerr Center for Sustainable Agriculture

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Preface

"Bringing Home the Bacon? The Myth of the role of corporate hog farming in rural revitalization" is based upon research conducted by the North Central Regional Center for Rural Development under the direction of Dr. Cornelia Butler Flora. The Executive Summary was developed by the Kerr Center from the study conducted by Dr. Flora.

The publication reports findings from the multi-county research sponsored by the Kerr Center and conducted by the NCRCRD. Two major questions were asked as the basis for the study. When citizens and government officials are faced with deciding whether and to what extent to pursue industrial recruitment as a means of rural revitalization they should ask:

1. **Do the benefits of the particular economic development proposal outweigh the costs?**

2. **Will the outcomes for the community serve the people of that community and state?**

The report provides information to help rural communities in Oklahoma and throughout the United States respond intelligently and appropriately when faced with rural development options. In particular the report, using data from Texas County, Oklahoma, illustrates the impacts of the recruitment of industrial swine production on a rural county.

The impact was measured by changes in:

1) financial indicators including job, income, taxes, business activity, banking activity, public assistance and housing;
2) people-related indicators including population size and diversity and education;
3) social indicators including crime rates and civil court cases and
4) environmental indicators including water, soil and air quality.

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We thank Dr. Cornelia Butler Flora, Director of the North Central Regional Center for Rural Development for accepting the project and directing the research and writing of the report. The drafting of a report with research conducted by number of individuals is a challenge and it requires flexibility on the part of the contributors.

A special note of thanks to Dr. Philip Patterson for serving as our copy editor on a very short time frame. We would also like to thank Shauna Jarvis who designed the cover and assisted with the layout of the report. Her tireless and quick assistance is appreciated.

The Kerr Center is a nonprofit foundation headquartered in Poteau, Oklahoma. The Center is named for Robert S. Kerr (1896-1963) former Oklahoma governor and U.S. Senator known for his conservation work.

For over thirty years, the name Kerr has been associated with progressive ideas in agriculture. From 1965-1985, the agricultural division of the nonprofit Kerr Foundation provided farmers/ranchers in southeastern Oklahoma with technical assistance and information.

In the mid-80's Foundation trustees recognized that Oklahoma agriculture was in crisis. Environmental and financial problems on the farm needed to be addressed with fresh ideas that emphasized long-term solutions. The Kerr Center for Sustainable Agriculture was established in 1986. It was the first organization in Oklahoma to devote all of its resources to working for a fair, profitable, environmentally-friendly agriculture. The Center has continued the work of its predecessor.

The Center's Sustainable Rural Development and Public Policy Program was established in 1996. The program assists rural citizens and decision makers by sharing information about building strong and sustainable communities and the consequences of proposed polices for rural communities and agriculture.

The report can be accessed through the Kerr Center web site **www.kerrcenter.com**. The document can only be reproduced with written permission from the Kerr Center.

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Bringing Home the Bacon?

The Myth of the Role of Corporate Hog Farming in Rural Revitalization

Executive Summary

of the report by
North Central Regional Center for
Rural Development
for
The Kerr Center for Sustainable Agriculture

Executive Summary

The Problem

Communities in rural Oklahoma are in constant need of more jobs to replace those lost to agriculture and other industries. Sometimes these jobs arrive in the form of corporate hog operations, but the cost to the community can offset the benefits derived from the new jobs.

As communities in rural Oklahoma decline, they must ask themselves several questions. What will a particular industry require in terms of infrastructure? What will be the effect of the new labor force on the schools, the businesses, the housing? What will be the effect on the environment? Is there a sufficient labor pool or will outside labor move in? What types of jobs are they and what types of jobs are they replacing? Is it a good "fit" for the infrastructure and makeup of the community?

Often in the rush to seek new industry, these questions either go unasked, or their answers go ignored. The result can still be jobs, but quite possibly jobs that extract more out of a community than they give back.

In this paper we will examine one Oklahoma county—Texas County—for the costs and benefits associated with the coming of Seaboard Farms, an industrial style hog operation to the area. The research will reveal that the true "cost" of a job in the hog industry to Texas County and Guymon, its largest community and the seat of county government—is over 50 percent higher than the average wages paid to the employees. These costs come in several varieties including: 1) the economic cost to the community including but not limited to tax incentives, and rebates and land lease agreements; 2) the human cost to the community including education issues and security issues; 3) the environmental cost to the community including air pollution, water and soil degradation and other qualitative measures such as odor.

The History of Hog Operations in Oklahoma

Vertically integrated hog operations, where major corporations control the hog product from semen and sow to pork bellies and loins, have been on the rise for two decades. Today, more than 85 percent of the hogs in Oklahoma are under the control of large corporate operations. This makes Oklahoma the leader among hog producing states in the percentage of hogs controlled by the corporations.

As the hog corporations look for more places to locate their operations, they look to rural areas such as Texas County where land is cheap. The rural locations often offer looser enforcement of environmental standards, cheaper labor, tax breaks, subsidized energy, water and sewage and construction of the supportive infrastructure. Other incentives include low cost capital, soft loans, grants, protection from nuisance suits and exemption from land use and zoning ordinances.

While hogs have always been a part of the Oklahoma agricultural landscape, the corporate hog farms began coming into the state in the 1990s. The advent of corporate hog farming into Texas

County can be seen in this one statistic: in 1990 there were 11,000 hogs in the Panhandle of Oklahoma, but by 1997 there were 905,000 and rising.

The dramatic increase in numbers is due in large part to Seaboard's processing plant and many Concentrated Animal Feeding Operations or CAFOs. Currently Oklahoma has ten hog companies with more than 5000 hogs (the largest USDA category measure). And while the number of hogs in the state has increased sevenfold this decade, the number of hog producers is down 55 percent, showing the dramatic consolidation in the hog business toward CAFOs. In three years, Seaboard Farms went from processing no hogs in Texas County to more than two million.

Seaboard and other corporate hog producers sought Oklahoma not only for its abundant land, particularly in the Panhandle, but also because of its lack of environmental laws found in several other states. And when the industrial swine operations came calling, Oklahoma responded by changing corporate farming laws, insulating the corporations from nuisance lawsuits and creating a form of corporate welfare through government giveaways.

Texas County was selected as the site for the Seaboard operation because Guymon offered and Seaboard accepted government help to pay one-third of the cost of building the infrastructure for the company. In exchange for building a processing plant and production facilities worth over $200,000,000, Seaboard demanded and Guymon offered a panoply of government-supported tax exemptions and tax-exempt bonds. The estimated cost of these incentives to the public sector is about $60 million or a cost of $27,552 per job. In exchange, Texas County became the epicenter for corporate hog farms in Oklahoma with four major corporations having operations there today.

The Welcoming of Corporate Farming to Oklahoma

In a July 1998 article in the Guymon newspaper entitled "Guymon is in Hog Heaven", the reporter, Jeff Burkhead, quotes a Seaboard Farms official as saying that Oklahoma was chosen by the corporation for its less restrictive corporate farming law. Oklahoma's original anti-corporate farming law, adopted in 1971 prohibited corporations from engaging in farming or ranching unless the corporation's shareholders were natural persons, no more than 20 percent of the corporation's annual gross receipts came from non-agricultural sources and there were no more than ten shareholders excluding lineal descendants.

However, an exception was created for corporations engaged in feeding livestock or poultry. In 1991, the Oklahoma Legislature changed its anti-corporate farming law to also permit swine operations, feed mills and processing facilities. Successful Farming magazine said that in passing the law, Oklahoma "gave corporate farms the green light.

Not only did anti-corporate farm laws change in Oklahoma to favor Seaboard Farms and others; the environmental laws were more lax in Oklahoma than in other hog producing states as well. According to the 1981 Oklahoma Feedyards Act if the operation discharged water only in a 24-hour, 25-year rainfall event no permit was required. By tying the permit solely to a discharge event, Oklahoma had little direct regulatory oversight of hog operations, making it an attractive location for corporations looking to put in large operations. Efforts to remedy this lack of regulation failed to pass in 1994, 1995, and 1996.

Finally in 1997 Governor Keating signed into law regulations for operations over 2000 animal units. The law required the large operations that used a liquid waste management system to obtain a license. The next year, a new law was enacted to further increase environmental regulation of large hog operations, requiring greater setback distances, odor abatement plans, employee training in manure management, a ten-foot separation between the water table and lagoon bottom and water

and soil monitoring. The new legislation included an $.80 per animal unit (1 hog=.4 animal units)/ year fee to defray the costs of enforcement.

The Myth of Efficiency of Large Scale Hog Operations

Given the dramatic increase of the percentage of hogs currently in operations of 5000 head or more, one would be led to the conclusion that these large operations are more efficient that the traditional family hog operations. Dr. Michael Duffy, Professor of Agricultural Economics at Iowa State University has concluded that large operations are not necessarily any more efficient than smaller operations.

Duffy's research indicates that the maximum economy of size in pork production is achieved at about 1000 hogs, a fraction of the number that Seaboard Farms and its cohorts have in their CAFOs at any given time. The profits that many large corporate farms enjoy come from their vertical integration—they farrow, finish and slaughter their hogs—not their size. Other savings come not from lower production cost but from lower transactional costs such as selling hogs in larger lots and buying feed in bulk.

Why does the size of hog farms increase if costs don't decrease after the level of about 1000 hogs is reached? According to Duffy, the answer lies in the level of income you wish to achieve. "Farms get bigger not to improve efficiency but to increase income." If you earn a fixed amount per unit and you sell more units you will earn more money. Size is often confused with efficiency, however.

Even if the large operations do achieve lower production costs, these savings do not necessarily make their way to the pocket of the consumer. Americans spent about 10 percent of their food dollar on pork and pork products and only about a third of the price of pork is directly related to the cost of the hog. Assuming that the large hog operations operate five percent more efficiently than their smaller counterparts, the American food consumer would see his or her food bill decrease by only 2/100th of a percent according to Dr. John Ilkerd, an agricultural economist at the University of Missouri.

If the consumer sees any savings, however, it will not come from the efficiency of mass production of pork. It will come instead from the glut of product these massive operations are placing on the market. Prices for live hogs, adjusted for inflation, are now at their lowest level in decades, according to Dr. Chris Hurt, an agricultural economist at Purdue University. As a result as many as a fifth of the nation's pork producers may go out of business sometime in 1999. As these family operations go out of business, firms such as Seaboard Farms in the Fortune 1000 Top Companies with its 130,000 sows and Murphy Family Farms, a Fortune 500 Top Private Company with its 300,000 sows will become even more powerful in an era of no meaningful competition. The resources of these companies and others will allow them to weather a period of losses to be made up by higher pork prices when competition is lessened in the future.

The Fiscal Costs Cost of Corporate Hog Operations to Guymon and Texas County

In the 1980 census the population of Texas County was 17,727 while the population of Guymon reached nearly 8,500 people. With the closure of the Swift Beef Packing Plant in 1987 and the slow down in the oil and gas industry population in Texas County dropped about 1,300 people by the 1990 census and Guymon lost 700 people. The town of Guymon looked to the dairy industry for help, but the American Milk Producers Industry would not allow any more milk production in the region. In the same year the region was denied additional production by the AMPI, Seaboard announced its intention to relocate to Oklahoma. Guymon responded.

Seaboard negotiated the terms under which it would locate in the area and bring jobs to the community. Then, Seaboard made extensive land purchases in the area and the company acquired water rights and later the right to put hog manure effluent on other landowners' properties.

In return for tax exempt bonds and tax exemptions that totaled $27,552 per job, Seaboard Farms built a facility worth over 200 million (using more than $60 million in public incentives) and brought an estimated 2,220 new jobs to the area. But far from being median wage jobs, the average salary at the corporate hog farms was approximately $16,000 with an industry-wide turnover rate of 120 percent per year.

One example of the community's liberal giving can be seen in the $8 million in sales tax supported bonds that cost Guymon taxpayers $14,800,000 over the fifteen year payout. Sales tax in Texas County was raised one penny on the dollar to retire these bonds. The state climbed on the Seaboard bandwagon by offering $400,000 in oil overcharge funds.

Other special agreements came from still more agencies. The Oklahoma Water Resources Board issued tax-exempt bonds in 1994 for $4.7 million. Seaboard purchased these bonds that were to be used to improve Guymon's water system. Seaboard's monthly bills repay these bonds. The city must use those revenues to repay the bonds, not to do maintenance on the system. However, in 1999, the city sold the system to Seaboard.

Panhandle Telephone Service obtained a $100,000 10-year interest free loan for Seaboard from the federal Rural Utilities Service, the successor to the Rural Electrification Administration. Although Panhandle Telephone sought others as well, the Seaboard loan was the only one approved for the federal loan with the stipulation that if Seaboard defaults, Panhandle Telephone is responsible.

The Guymon Industrial Authority issued $4.5 million in bonds in 1994 and, again, Seaboard was the only purchaser. The bonds were used by Guymon to acquire 170 acres of land, renovate the abandoned meatpacking plant, and upgrade gas, sewer and water lines. The plant was then to be leased by the city to Seaboard Farms for a nominal fee and later sold to the company. Because the city used "tax increment financing" (TIF) to repay the bonds, Seaboard is, in essence repaying itself with interest and the interest Seaboard pays itself is tax free.

Because of this unusual financing Seaboard Farms pays only $9700 in taxes to the county for the site on which a $100 million dollar business stands today. About $2000 goes to the county and the rest to the school. To compensate Seaboard pays an additional $175,000 to the school district annually. Even after this gift, the TIF arrangement has allowed Seaboard to avoid an additional $120,000 per year in county taxes until the year 2017. Partly because of the paltry sum that the school received, budgets were tight when the influx of students from the new plant workers came into the school system

Seaboard also received a five-year property tax exemption from the state, which is standard practice. Seaboard, however, is also receiving a five-year exemption on ad valorem taxes for its land, improvements, buildings, machinery, fixtures and equipment at its Guymon plant. That exemption comes under a program for companies who make an investment of $250,000 and hire 15 employees who receive health benefits. The state reimburses jurisdictions for this lost revenue meaning that it is Oklahoma taxpayers, rather than Seaboard, who pay taxes on Seaboard's property.

The state also awarded a $1 million Community Block Development Grant (CBDG) to Guymon in 1995 for water, parking and roadway improvements. These CBDGs are pass-through grants from the U.S. Department of Housing and Urban Development (HUD). Half the amount is a grant; the other half is an interest-free loan. HUD targets urgent need, slum, or blight for the funds, but also considers

job creation, the route by which Guymon received the money. The money eventually funded a parking lot and water tower at the Seaboard plant.

Similarly, Seaboard Farms and an affiliate company used $20 million in tax exempt financing from the State of Oklahoma to build lagoons. This same source of funding was not available to other producers. In fact, it can be argued that the total financial package that Seaboard was offered gives it such an unfair advantage in the marketplace that the family hog operation, long a tradition in Oklahoma could find it difficult to compete in its current form. And this list of government incentives is not even inclusive. Seaboard used the state's Investment/New Jobs Income Tax Credit and rural enterprise zones to further sweeten its deal. These incentives are not available to family farmers.

The irony of all of this activity to bring Seaboard to Texas County is that the county enjoyed a low 3.7 percent unemployment rate and a relatively high per capita income of 22,107—the state's fourth highest. The starting pay for the 2,200 jobs at Seaboard's plant and the 1,300 jobs at their production facilities was $7 per hour. The average wage was $8.31 per hour. This would net an income between $14,560 to $16,620 far below the county average. As a result, per capita income in Texas County went down from $22,107 to $19,204 from 1993 to 1996 a decrease of 13 percent while the per capita income in Oklahoma increased from $17,510 to $19,574 an increase of 12 percent in that same period.

Why would an area with low unemployment recruit an industry with low wages and high turnover? Why would a community want the distress and social burden of imported wage earners who earn less than the per capita income of the region?

Not only do operations such as Seaboard fail to deliver high paying, quality jobs that lend stability to the community, they export the profits out of the community. Although Seaboard is listed on the American Stock Exchange, a single Boston family owns 75 percent of the stock. Of the 1,500,000 outstanding shares, only about 1,000 to 2,000 trade daily.

The Human and Social Cost of Corporate Hog Operations to Guymon and Texas County

An increase in jobs, population and other factors associated with the dramatic changes that Seaboard brought to Texas County also carries with it certain "costs," some actual and others that must be uncovered.

Because of the influx of workers and their families, it was necessary for Guymon to build an additional elementary school. The new attendees increased the number of limited English or bilingual students in the Guymon school system 125 percent since 1990. Because the number of classroom teachers has not increased as fast as students, the student to teacher ratio in the school increased. As a result the teachers are facing a larger and more diverse group of students than they did in 1990.

During this same time, from 1990 to 1997, the dropout rate from Texas County schools went up 55 percent to reach a total of one out of every 16 students. In the comparison counties the figure is one out of every 45 students.

The increase in population in Texas County were directly attributable to the early jobs offered by the Seaboard Corporation. The resulting increases in crime are not directly attributable to Seaboard, of course, but are a natural effect of increasing the population of a town that had little infrastructure to handle the growth. Between 1990 and 1997 crime in Texas County increased 74 percent while decreasing 12.5 percent in the cohort counties. Even the crime rate per capita also increased in Texas County while decreasing in the comparison counties.

Thefts increased 64 percent. Violent crimes increased 378 percent. Texas County began the decade with a lower crime rate than the comparison counties and had a rate four and a half times higher than those same counties by 1997. On the civil side, while litigation went down 11 percent in the cohort counties, civil lawsuits went up nearly seven percent in Texas County. This increase might suggest a move away from neighboring to resolve disputes towards litigation in Texas County.

Evidence also supports the loss of neighboring in Texas County. Residents report that opposing sides on the Seaboard issue no longer sat together at high school sporting events. Others reported boycotts of their businesses due to the one-cent increase in sales tax that was not put to a vote of the county.

The Environmental Cost of Corporate Hog Operations to Guymon and Texas County

As long as animals were dispersed throughout the county, agriculture was designated as a non-point source of pollution. Once animals were confined in CAFOs in ever-increasing numbers, concerns have been raised about the ground water in surrounding areas. Full-grown hogs under confinement conditions produce 15 pounds of waste per day. This would equate to 1.738 billion pounds of waste daily in Texas County when a conservative average weight of 200 pounds per finish pig is used. Waste is disposed of in highly liquid slurry in CAFOs and the costs to transport it are prohibitive meaning that the bulk of the tons of waste must be disposed of in the immediate area.

Both scientific and anecdotal evidence exists that the practice is fraught with the possibility of error. Heavy metals such as copper and zinc are present in the waste and capable of leaching into the groundwater. The 182 lagoons in Texas County are clay lined to allow one-quarter of an inch of the slurry per acre per day to seep into the ground, which calculates into over 500 gallons per acre per day seeping into the ground.

The Upper Beaver River watersheds, one of which Guymon sits upon has serious water quality problems with a ranking of five out of a possible six, with one being the best. The EPA has determined that the watershed has some vulnerability to stressors with the potential for a continual decline in water quality likely because of the nitrogen runoff from the CAFOs. As recently as the turn of the century, the Beaver River was torrential, three miles wide and capable of wiping out bridges. Today it is dry 90 percent of the time, depleted by irrigation. Because of this, the county's main source of water is now the High Plains (Ogallala) Aquifier, flowing some 200 feet below the Panhandle. From 1980 to 1995, the water table dropped twelve feet, due in part to an increase in irrigated corn acres from 46,000 to 50,000 between 1990 and 1998. Each of these acres uses approximately two acre feet of water each year. Texas County uses over 58 billion gallons of water on corn alone.

The introduction of corporate hog farms into Texas County placed an additional strain on an already near-capacity system. The growth of these operations led to a 66 percent increase in livestock water use between 1990 and 1998. In 1998 alone, Seaboard Farms obtained 99 permits for swine operations in Texas County and 12,906 acre feet (at 325,851 gallons each) of swine allocation from the Oklahoma Water Resources Board. Even when the hog slurry is recycled back into the ground it's nutients are not in the correct percentage for optimum crop production, causing a nutrient imbalance.

Some of the soil in Texas County is loamy soil and high in clay content. To a point, the recycling of manure nutrients in the soil is helpful increasing the organic matter, nutrient level and water holding capability. However, excessive manure application will negatively impact both the soil and water quality with nitrate pollution, phosphorous buildup and greater salinity. Seaboard and others are allowed to apply the manure at maximum disposal rates, not necessarily the best rate for the crop. Since only 35 to 45 percent of the nitrogen taken in by hogs is retained, the millions of hogs in Texas County possess the capacity for polluting the groundwater through leaching.

Phosphorous from the CAFOs represents an even greater long-term problem since it does not leave the soil but accumulates. Phosphorous from CAFOs accumulates faster than nitrogen and can spread its pollution through soil erosion. As accumulation of phosphorous in surface waters creates eutrophication where the oxygen supply is cut off in water and aquatic life is destroyed.

Although cattle feed lots have been a part of the Oklahoma agricultural landscape for decades with a smell all their own the odor from hogs has four times the intensity. The odor is a combination of barns, manure, disposal of effluent and disposal of carcasses. Dust is a major carrier of the odor, but the largest number of complaints from the public by far concern the spraying of the effluents onto various crops. Though soil injection methods are possible, they are more expensive and passed over for the cheaper but smellier alternative. The four major gasses produced by the large-scale hog operations are hydrogen sulfide, carbon dioxide, ammonia and methane. Hydrogen sulfide and ammonia in particular are known to produce odor. All of the gases can inflame the human sinus membranes with hydrogen sulfide doing the most harm if untreated.

In the qualitative realm, the quality of life and the amenity of a community are adversely affected by smell. Citizens in Texas County are left with little recourse since nuisance suits have been made difficult to win because of a special statutory nuisance protection that applies to the swine operations.

Until recently,Oklahoma had only one agricultural inspector in the Panhandle responsible not only for the burgeoning number of hog barns but also the many cattle feed lots. Companies such as Seaboard can count on little enforcement of state regulations once the permit has been issued. In the meantime, environmental capital in Texas County is under threat. From short-term health effects to long-term threats to the ecosystem the implications are everywhere.

The Unforeseen Consequences

It is possible to look at the coming of corporate hog operations in Guymon and Texas County and call it a mixed blessing. Seaboard Farms replaces Swift Packing. Jobs are created. New businesses come in generating more tax money in exchange for higher crime rates, a lower quality of life, and a threat to the environment and odor. However, that view is shortsighted. The aforementioned consequences are foregone conclusions of the day to day operations of Seaboard and its type. With so much environmental degradation occurring on a routine level in Texas County, one can only imagine what would occur during a 100-year flood or a 45 day period in which no slurry could be put on already saturated field. Or the rupturing of a lining of the lagoons or any of dozens of other "normal accidents."

Another unforeseen consequence is the paths not taken by Guymon and Texas County. Other opportunities for economic expansion in Texas County were foregone in the effort to bring corporate hog operations into the area. Even though no vote may have been taken or proposals rejected, once the decision was made to cast the future of the area with Seaboard and others, alternative income streams were ignored. For instance, a solution to the closing of the Swift packing plant could have been a "new wave coop" that is farmer owned and running the packing plant for the value it adds to the farm livestock infrastructure already in place. But it was not pursued in favor of finding an out-of-town "white knight" to replace the displaced jobs. Other unconsidered opportunities have gone elsewhere. Others still looking for a community might not currently consider Guymon or Texas County precisely because of the path that was chosen.

Benefits to Guymon and Texas County from Corporate Hog Operations

The arrival of Seaboard had a limited number of positive effects on Guymon and Texas County. The

corporation brought jobs into the community. As a result, employment rose in Texas County increased 72 percent between 1994 and 1996 from 3,375 jobs to 5,789. However, five comparison counties in Western Oklahoma surveyed by the NCRCRD researchers showed an employment increase of an average of 61 percent per county, rendering the gains in Texas County statistically insignificant and possibly due to chance.

The coming of Seaboard to Texas County did result in an increase in the tax base. Texas County's total net valuations—the assessed values of property regardless of tax status—increased from $90 million to $120 million, an increase of 30 percent. This growth of 25 percent was far greater that the compaison counties growth rate of 6 percent. Not surprisingly, the total of net taxes assessed in Texas County went up 42 percent between 1990 and 1997 while the comparison counties rose only 7 percent.

It is important to note that many of the increased taxes and increased valuations are in the tax increment financing area and go to pay off the bonds for Seaboard. The recoverable tax increase was paid by the State of Oklahoma to Texas County to compensate for the tax forgiveness giveN to Seaboard. Any benefits in tax revenue came to the area thanks in part to the State taxpayers.

The number of business establishments in Texas County increased 29 percent from 446 business establishments in 1990 to 600 in 1997. Even in a time when larger discount stores were causing the consolidation of businesses in rural Oklahoma, 62 new retail service businesses opened in Guymon between 1993 and mid-1995. With this expansion of retail activity, sales tax revenues increased 137 percent in between 1990 and 1997.

The influx of Seaboard employees, particularly in middle management, quickly depleted the number of available homes on the market in Guymon. In the five years before Seaboard's arrival only two houses had been built in Guymon. In 1994 and 1995, 60 new homes were built. Not surprisingly, the cost of a median house in Texas County rose 28 percent from $46,673 in 1990 to $54,675 in 1998. The value of a median home in the comparison counties went down 6.4 percent during the same time. But studies of housing have shown that Texas County has a shortage of affordable housing.

Population increased by about 10 percent during the period between 1990 and 1997 while the surrounding counties declined six percent. The increases were particularly heartening in the rise of children under the age of 14 where the population increased by 12 percent while the surrounding farming dependent communities continued to lose their young population. The influx of young people and the ability to retain them after high school or college graduation is one measure of a community's stability. The expanding population brought with it added diversity to Texas County. The Hispanic population in the community virtually doubled between 1990 and 1997.

The Laws Affecting the Growth of Oklahoma Corporate Hog Operations

With 85 percent of its hog production in the hands of operations of 5000 hogs or more—the largest such concentration in the nation—the potential impact of the waste from so many hogs in a limited area can produce major environmental consequences if unchecked. Since large-scale hog operations are a new phenomenon in the Oklahoma panhandle, there are only a few points of data from which we can extrapolate to infer the possible environmental impact.

When Seaboard and other large scale CAFOs came to Oklahoma there was an almost total lack of environment regulations in the state and it was that deficiency of regulations that led some of the operations to the state. A 1993 right to farm law protected CAFOs from nuisance lawsuits from residents who lived three miles or more outside an incorporated city or where there are less than ten

occupied homes within a square mile. Although CAFOs were not required to be licensed in 1993 most chose to seek the licensure since only licensed operations were protected from these nuisance suits.

Since Seaboard began operations in Texas County, Oklahoma's CAFO policy has been modified three times, a point Seaboard is quick to point out. When the inevitable odors from these operations began to reach the homes of these sparsely populated areas that had no legal recourse, many of these residents formed the Safe Oklahoma Resource Development (SORD). SORD, along with other statewide groups pressed the legislature to issue a moratorium on construction on CAFOs.

Other legislation followed. In 1997 House Bill 1522 was passed. It specified that CAFOs are point sources subject to licensing and established a series of setback requirements from residences, parks and public water supplies. It also required a 4-foot separation between ground water and the bottom of lagoons and installation of back flow valves to protect groundwater during effluent irrigation.

Later that year, in December, a committee appointed by Governor Keating recommended county option on regulation of CAFOs and a moratorium on the building of them. The county option was later dropped but the moratorium commenced on March of 1998.

The moratorium was lifted on August 1, 1998 by Senate Bill 1175. The bill's contained some controversial amendments to HB 1522. One was an 80 cent per animal unit (1 hog = .4 animal units) fee to help defray the costs of the law. The other major requirement was the installation of leak detection systems or monitoring wells be present in all CAFOs with a liquid waste management system housed in a roof-covered structure. Such systems, which only existing in hog producing are called Licensed Management Feeding Operations, or LMFOs.

Summary

The lesson of Texas County and Seaboard Farms is that public incentives when used wisely can build a community. When used unwisely, they can destroy it. The entrance of the hog industry into Texas County has polluted the community. It has polluted the community with an odor. It has polluted the community with polarization of people who were once friends. It has polluted the community with waste by-products that threaten the soil and the water. It has polluted the community with schools that are more crowded. It has polluted the community with jobs that appear to cost more to support than they return in wages. And it has polluted the future of the community, as young people must decide either to work in the hog farms, coexist with the hog farms or move away.

And who has benefited from the state, county and local incentives that lured Seaboard Farms to the area? Certainly not the taxpayers who must fund the rebates given. Certainly not the school children whose schools see no direct benefit from corporate taxes but do feel the pinch of additional students. Certainly not the wage earners who moved in to earn a wage that was less than the average wage in one of Oklahoma's most fully employed areas. Certainly not the law enforcement officers whose jobs suddenly became more dangerous. The main beneficiaries of the agreement between Texas County and Seaboard Farms are the stockholders of Seaboard Farms.

Hogs as Rural Development

A decline in population and tax base has occurred in many of the U.S. farming-dependent counties. Economic diversification is necessary if these communities are to survive. One source of diversification appears to be through hog production and processing. Many state and community leaders seek to attract these firms.

The major questions faced by citizens and government officials making decisions about industrial hog production are: 1) Do the benefits outweigh the costs? 2) Will the outcomes for the community serve the people of that community, the state and the nation?

Inexpensive space is a major reason firms locate in rural areas. Cheap transportation has reduced one of the transaction costs of moving meat to other processors and consumers. Government-supported incentives may determine which rural area is chosen. These incentives include tax breaks, subsidized energy, water and sewage, construction of supportive infrastructures, low-cost capital, soft loans and grants. The public sector also offers inducements such as loose enforcement of environmental standards, protection from nuisance suits, exemption from land use and zoning ordinances, exclusion from point source pollution liability, and low labor costs.

The major questions faced by citizens and government officials making decisions about industrial hog production are: 1) Do the benefits outweigh the costs? 2) Will the outcomes for the community serve the people of that community, the state and the nation?

How realistic is it to view integrated hog operations as a vehicle for resuscitation of rural communities? Economic considerations should be honestly evaluated with true costs and revenues counted. Such developments have to be carefully analyzed in a context of business viability, worker availability and well being, social equity, and environmental considerations.

This report focuses on the town of Guymon and Texas County, Oklahoma. Guymon is undergoing rapid change resulting from intensifying corporate agriculture. First, the changes in the hog industry in Oklahoma are identified and discussed, along with the direct and indirect incentives that Oklahoma offers large-scale hog producers. Second, is an analysis of the changes in Texas County since integrated hog production has located there. Finally, alternative ways rural areas have dealt with the challenges of economic development will be presented.

Introduction

The number of large integrated livestock producer/processor enterprises has increased

tremendously in the 1990s. Colorado,[1] Kansas,[2] Utah[3] and Wyoming[4] in particular experienced situations similar to those facing Oklahoma. Ownership and control in the swine industry has undergone considerable concentration in a very short period of time. At the end of 1998 in the U.S., operations with more than 5,000 hogs controlled 42 percent of the total hog inventory. They owned an additional 23 percent of the hog inventory raised by contractors.[5]

Another way to understand the pork industry is to determine who owns the source, or the sows. With 2.6 million sows, the 50 largest producers now market or will market by 1999 half the pigs in the U.S.[6] Concentration has increased between 1997 and 1998, as mergers took place. For example, Continental Grain Company moved from 13th place to third place by acquiring Premium Standard Farms. Seaboard Corporation, which moved from eighth place to fifth place nationally, is the only one of the top "Pork Powerhouses™" that continues to expand (see Table 1).

In integrated swine operations, the company owns the hogs from semen and sow to porkbellies and loins. Integrated companies own the hog until they deliver it to a packer. Feeder pigs are not bought from local growers. Feed is delivered, and some components of that feed can be purchased locally. The company provides drugs and veterinary services. The labor is done either by direct employees of the company (as in the case of company-owned farms) or by contract farm-

Table 1. Pork Powerhouses™ 1998

1998 Rank	1997 Rank	Name of Operation	Headquarters	Sow Base	# Sows 1998	# Sows 1997
1	1	Murphy's Family Farms	Rose Hill, NC	NC, MO, OK, IL	337,000	297,200
2	2	Carroll's Foods	Warsaw, NC	NC, VA, IA, UT, Mexico	183,600[a]	144,800
3	13	Continental Grain Co.	New York, NY	MO, NC, TX	162,000[b]	162,000[b]
4	3	Smithfield Food	Smithfield, VA	NC, VA, UT	152,000[a]	120,000
5	8	Seaboard Corporation	Shawnee Mission, KS	KS, CO, OK	125,500	108,750
6	4	Prestage Farms	Clinton, NC	NC, MS, UT	125,000	115,000
7	6	Tyson Foods	Springdale, AR	AR, NC, MO, OK, AL	123,500	111,500
8	4	Cargill	Minneapolis, MN	NC, AR, OK	120,000	115,000
9	9	Dekalb Swine Breeders	DeKalb, IL	KS, OK, IL, TX, IA, CO, NC	97,000	97,000
10	10	Iowa Select Farms	Iowa Falls, IA	IA	90,000	82,000

[a] includes Circle Four, [b] includes Premium Standard Farms

Source: *Successful Farming*, Oct. 1998.

ers. The latter own the land and provide labor, in essence renting out a hog parking space in their feeding facility and providing maintenance for the pigs while they are there. Part of their contract arrangement is to dispose of the manure generated. The hogs are not sold locally or bought locally, thus no hog sales appear on local financial statements.

Hogs in Oklahoma

Although the number of farms in Oklahoma decreased between 1980 and 1997, the number of hogs and corporate hog producers increased dramatically, following national trends. In 1994, Oklahoma ranked 25th among states in terms of total hog numbers. In 1998, Oklahoma ranked eighth, due in part to the expansion of Seaboard Corporation.[7]

As recently as 1990 there were 11,000 hogs and pigs in the Panhandle, but by December 1997 this figure had shot up to 905,000[11] and continues to mount... Between 1989 and 1998, the number of producers in Oklahoma dropped by 50 percent while the number of hogs increased more than 700 percent.

Oklahoma experienced the greatest rate of increase in hog population of any state between 1997 and 1998.[8] The fastest growth in hog and pig inventories in the state is in the Panhandle district, which includes Texas County. As recently as 1990 there were 11,000 hogs in the Panhandle, but by December 1997 this figure had shot up to 905,000[9] and continues to mount.

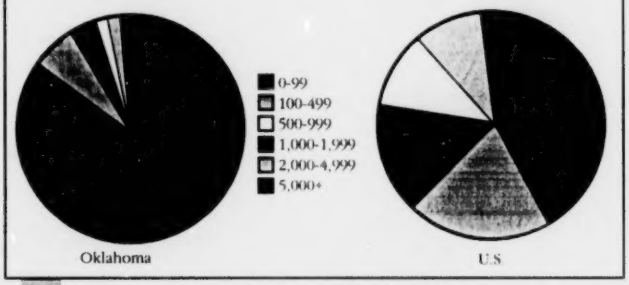
Despite its reputation as a cattle state, Oklahoma had 10,000 pork producers (14 percent of its farmers) raising more than 300,000 hogs in 1979, putting it in the top half of all states for the number of hog operations.[10] Almost all of these operations had less than 2,000 hogs. Ten years later in 1989, the state still had 6,200 pork producers raising 230,000 hogs. By 1998, Oklahoma had only 3,100 pork producers (4 percent of the farmers) raising 1.77 million hogs. Forty operators had more than 5,000 head (the largest size category measured) and 85 percent of the hog inventory.[11] Between 1989 and 1998, the number of producers in Oklahoma dropped 50 percent while the number of hogs increased more than 700 percent.

Much of the Panhandle's increased production is being carried out directly by Seaboard Corporation through the use of Concentrated Animal Feeding Operations (CAFOs). Seaboard processes its hogs, and a significant number of animals are brought from Kansas and Texas. According to its 1997 annual report, Seaboard is the seventh largest pork processor in the U.S.[12] According to *Successful Farming*, it is the fifth largest sow producer and expanding.[13] Seaboard claims its Guymon packing plant has capacity in excess of 4 million hogs per year, so a continuing increase in Oklahoma inventories can be expected.[14]

To provide a "sink" for the manure produced, Texas County raises more acres of irrigated corn than any other county in Oklahoma, up from 54,400 acres in 1991 to 90,000 acres in 1998.[15]

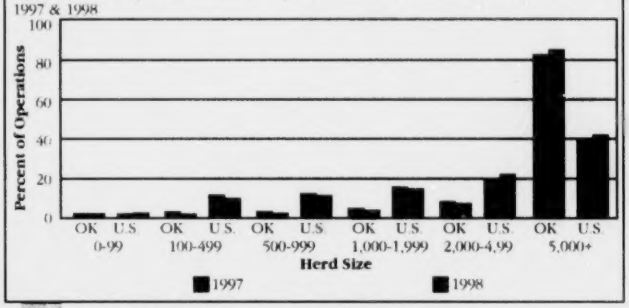
In one way, Oklahoma's history of pork production is similar to other leading pork producing states. All have lost nearly three-fourths of their producers in the last 20 years, like the nation as a whole. However, growth in the number of hogs produced in Oklahoma and the concentration of that hog inventory on larger farms puts Oklahoma in a class almost by itself.[16]

Figure 1. Percentage Distribution of Hogs by Herd Size in the U.S. and Oklahoma, 1998



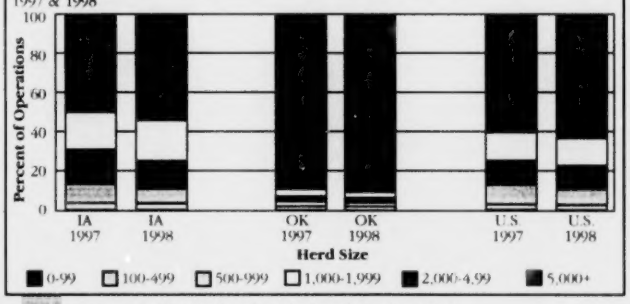
Source: USDA, National Agricultural Service, 1998

Figure 2. Percentage Distribution of Hogs by Herd Size, Oklahoma and U.S. Total, 1997 & 1998



Source: USDA, National Agricultural Service, 1998

Figure 3. Percentage Distribution of Hogs by Herd Size in Iowa, Oklahoma and U.S., 1997 & 1998



Source: USDA, National Agricultural Service, 1998

Eleven of the nation's 50 largest pork producers have operations in Oklahoma.[17] Among the nation's top producing states, Oklahoma leads in the percent of hog inventory on operations with more than 5,000 head. By 1998, 85 percent of all hogs were in these large size operations.[18] These larger operations are primarily owned or controlled by DeKalb Swine Breeders, Tyson Foods, Pig Improvement Company, Seaboard Corporation, Murphy Family Farms and Vall. Only Kansas, North Carolina and Missouri also have more than 50 percent of swine inventory in operations that large.

By contrast, many midwestern states still have nearly one-fifth of their hogs on operations with less than 1,000 head.[19] Only 5 percent of all hogs in Oklahoma are in operations of less than 1,000 head. This is a sharp contrast to the rest of the U.S., as can be seen in Figure 1.[20] Further, Figure 2 shows the dramatic increase in concentration of hogs in large operations in Oklahoma and the U.S. in the last year.

Iowa, the state with the largest number of hogs and a tradition of raising hogs on small family farms, is an interesting contrast (see Figure 3). Although the percentage of hogs in herds of more than 5,000 increased in Iowa, as hog population increased, there is still a substantial, although declining, proportion of hogs in small operations.[21]

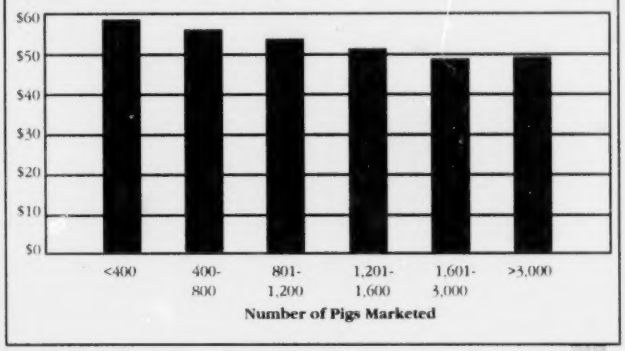
Why Larger Hog Operations

While some claim economic efficiency and consumer demand are the reasons for the growth of large hog operations, other leading analysts reject these claims. Research by Dr. Michael Duffy, professor of agricultural economics at Iowa State University, has concluded that large operations are not necessarily any more efficient than smaller operations. Data from farm records in several states indicate that the production costs of large-scale hog operations are only slightly less than "average" moderate-sized operations (see Figure 4).[22]

Dr. Duffy says, "Size does have an influence on the level of profit simply because if you earn a fixed amount per unit and you sell more units you will earn more money. Size is often confused with efficiency, however."[23]

According to Dr. Duffy, most economies of size in pork production are achieved at a little over 1,000 finishing hogs. "This raises the question of why farms get bigger if costs don't decrease. The answer lies in the level of income. Farms get bigger not to improve efficiency but to increase income."[24] Larger operations also gain advantages in sale price and the cost of inputs.

Figure 4. Total Economic Costs per CWT Based on Number of Pigs Marketed, 1996



Source: Duffy, M., Iowa State University

Even if larger operations do achieve lower production costs, the decrease is unlikely to result in significant financial benefits for consumers. According to Dr. John Ikerd, an agricultural economist at the University of Missouri, the average consumer spends only 10 percent of disposable income on food, and only 10 percent of that amount is spent on pork. In addition, the share of that small amount attributable to the actual value of the producer's hog is only 35 percent, with the remaining value associated with processing, packaging and marketing costs. As a result, even if the production costs of large operations are 5 percent less than smaller producers, at best, "total food costs would be two-tenths of one percent less and consumers on average would spend only two-one-hundredths of one percent less of their income for food," according to Dr. Ikerd.[25]

Most of the expansion in hog production began before meatpackers started paying prices based on the lean percentage of hogs, and even that development is probably not entirely attributable to consumer demand. According to Dr. Dennis DiPeitre, an economist at the University of Missouri, the current pricing system based on a hog's weight and lean percentage "is pricing pigs to lower the cost of slaughter and carcass breakdown. It is a pricing system based on packer technology rather than consumer preference."[26]

Leading economists have concluded, "The rapid increase in large confinement swine facilities and mega producers has been a response to profit potential in swine production."[27] Consumers buy what packers present, and the major packers present a uniform product.

The profits in pork production during most of the 1990s were substantial and allowed some pork operations to grow considerably in size and wealth. In 1997, Murphy Family Farms, the nation's largest pork producer, became a Forbes 500 Top Private Company, with estimated gross revenues of $775 million and nearly 300,000 sows.[28] Between 1997 and 1998, Murphy has added nearly 40,000 sows in four states.[29] Seaboard, a Fortune 1000 company, had gross sales in 1997 of $1.7 billion[30] with about $532 million of those sales coming from its pork operations.[31] Its expansion plans are intended to make it the nation's second largest pork producer and the third largest pork processor.[32]

This enormous expansion in hog production had a devastating effect on hog prices in 1998. Prices for live hogs, adjusted for inflation, are now at their lowest level in several decades, according to Dr. Chris Hurt, an agricultural economist at Purdue University.[33] The number of pork producers likely to go out of business in the coming year may also set records. As many as one-fifth of the nation's pork producers will go out of business sometime in 1999 because of the "glut of hogs."[34]

The impact of overproduction is not evenly felt. The immediate source of oversupply is the lack of processing capacity. The entirely integrated units are not impacted, as they have first priority access to the plant. But farmers with contracts that locked in a high price will soon lose those contracts, and farmers without contracts have to take the low price offered to supply the residual animals to meet current slaughter capacity. First, independent producers, then non-corporate owned contractors, will be forced out of business, leaving them with heavy debts on highly specialized production facilities.

Why Oklahoma?

What led the large hog operations to Oklahoma? With cheap space available in most of the farming-dependent U.S. counties west of the Mississippi, why has Oklahoma had such an increase in integrated corporate hog operations? At least four areas of Oklahoma policy were likely factors in attracting large swine operations to the state: weak anti-corporate farming laws, weak laws regarding environmental protection, permissive groundwater access laws, and industrial recruitment incentives.

Anti-corporate Farming Laws

The *Southwest Daily Times* reported an official with Seaboard Farms said one of the reasons the company chose Oklahoma was because of its less restrictive corporate farming law.[35] Other sources also cited Oklahoma's attitude towards corporate farming as one explanation for the state's enormous growth in large-scale hog operations.[36]

Oklahoma's original anti-corporate farming law adopted in 1971 prohibited corporations from engaging in farming or ranching unless the corporation's shareholders were natural persons (a legal expression excluding holding companies by other corporations). In addition, no more than 20 percent of the corporation's annual gross receipts could come from sources other than farming or ranching, and no more than 10 shareholders (excluding lineal descendants) were allowed. An exemption was created for corporations engaged in feeding livestock or poultry.[37]

In the late 1970s the law was amended to increase the amount of gross income allowed from sources other than farming and ranching from 20 percent to 35 percent. In 1988, the law was amended to create an exemption for operations engaged in the production of breeding stock.[38] In 1991, the Oklahoma Legislature changed its anti-corporate farming law to also permit swine operations and related operations such as feed mills and processing facilities.[39] As one farm publication stated, "States like Texas, Missouri, and Oklahoma have their arms open to livestock expansion and don't care if the farms are big, small, corporate, independent, or vertically integrated...Oklahoma is trying to attract livestock by altering their laws."[40]

Environmental Regulation

While there is not a precise definition of what was considered a Concentrated Animal Feeding Operation under the 1981 Oklahoma Feed Yards Act, the common interpretation is that the law created a system of environmental permitting that allowed operations to avoid obtaining a license if the facility only discharged waste in a 24-hour, 25-year rainfall event. Facilities that were required to obtain a permit or those that voluntarily obtained one (usually in order to obtain immunity from nuisance lawsuits) had to comply with various rules on manure management and public notice.[41]

However, by exempting operations from permitting if they discharged only during a catastrophic event, most operations were able to escape regulatory oversight, making Oklahoma an attractive place to build large hog operations. Corporate swine operations were

able to build and operate with little to no requirements on siting, construction standards and manure disposal.[42]

In 1980, Oklahoma passed a right-to-farm law, protecting "good agricultural practices" from nuisance suits.[43] In 1993, it became even more difficult to bring a nuisance suit against a licensed CAFO operation. Residents living three miles or more outside an incorporated city or in an area where there are less than 10 occupied homes within a square mile cannot bring a suit unless the operation endangers the health and safety of others.[43b] Although CAFO operators in 1993 were not required to be licensed, some were because only licensed operators are protected from nuisance suits. (Some Seaboard operations did not become licensed until mandated.) An Oklahoman's odor complaint had no legal standing against a licensed hog farm unless evidence showed the hog farm in question endangered the health or safety of others.

In 1994, 1995 and 1996, attempts to pass legislation increasing environmental regulation of large hog operations failed. During the period of greatest growth in large-scale hog operations, the state of Oklahoma had few environmental restrictions.

The first significant tightening of Oklahoma's permitting system took place in November 1996, when Attorney General Drew Edmondson issued an opinion that a public hearing must be held on license applications if neighboring landowners alleged that the operation would have a direct and substantial effect on their property or legal interest.[44]

Four subsequent Attorney General opinions issued in 1997 (Nos. 97-30, 97-101, 97-107 and 97-95) concluded that: 1) the Oklahoma Feed Yard Act did not prohibit the constitutional cause of action for taking or damaging private property; 2) that new 1997 rules on feedlots applied to operations under construction but not yet licensed; 3) a three-mile setback requirement applies to surface water only; 4) the State Board of Agriculture has jurisdiction over the management and disposal of waste from feedlots.

The Oklahoma Department of Agriculture subsequently adopted rules for public hearings, and the public hearing requirement began to institute some measure of accountability into the permitting process. Demands for oversight continued, however, because rural residents believed that not enough had been done to protect the environment and the neighbors of the hog farms. Governor Keating signed a new statute that took effect September 1997. That law mandated a license for operations containing more than 5,000 swine, each weighing approximately 55 pounds or more and using a liquid waste management system. It also contained provisions on the application of liquid waste near homes and wells, setback distances from homes, and pollution prevention plans.[45] In 1998 the animal unit requirement for licensing was changed to 2,500 swine, each weighing approximately 55 pounds.

Despite the law's passage, many still believed more needed to be done to provide greater controls over the large hog operations. During 1997, many bills were presented, but eventually HB 1522 was passed. It was an update and renaming of the Oklahoma Feed Yards Act, now called the Oklahoma Concentrated Animal Feeding Operations Act. It established a series of setback requirements from residences, parks and public water supplies. Pollution problems were addressed by 1) developing Best Management Practices; 2) demonstrating that there is a 4-foot separation and no hydrologic connection between surface water and ground water and lagoons; and 3) installing back flow valves to protect groundwater during effluent irrigation.

Governor Keating named a task force to study the water quality issues. In December 1997, the Task Force issued its report calling for more than 75 changes, including county option to zone operations and a moratorium on new licenses issued. The county option was dropped, but a one-year moratorium was imposed in March 1998 as the legislature considered additional environmental safeguards.

The most controversial amendments to SB 1175 were an imposition of an $.80 per animal unit (1 hog = .4 animal units) license fee to help defray the costs of the act and the requirement of leak detection systems or monitoring wells for all Licensed Managed Feeding Operations (LMFO). A LMFO is a CAFO with a liquid animal waste management system where animals are housed in a roof-covered structure. Only hog CAFOs have such systems.[46]

Senate Bill 1175, effective August 1, 1998, also lifted the moratorium, and required employee training in manure management, a 10-foot separation between the water table and lagoons, groundwater monitoring, and soil sampling.

While county option was suggested by the Governor's task force, it was not adopted by the legislature. It is still argued that county option, as in neighboring Kansas, will save counties from confined hog concentrations, while others believe it will undo state unity.

In Kansas, Seward County, which borders Texas County, voted to shut Seaboard out even after it had purchased land. Even with the county option, Kansas is one of only four states where more than 50 percent of its hogs are in operations of 5,000 or more hogs. Loopholes in the law allow corporations like Murphy Farms to qualify as a family farm and Seaboard Corporation to use contracting to avoid local restrictions.

Groundwater Access Laws

Access to groundwater in Oklahoma is tied to ownership of the land overlying the water, and landowners may apply for a permit from the Oklahoma Water Resources Board. In Oklahoma, groundwater is considered private property but subject to regulation. Applicants are allotted up to two-acre-feet/year per acre of land, depending on the aquifer. A permit may be challenged, but the Board generally grants permits where the applicant can show that the proposed use is beneficial and that waste by depletion or pollution will not occur.[47]

In 1995, Texas County led the state in the amount of groundwater used--twice that of any other county. Texas County also led the state in the largest amount of freshwater withdrawn for both irrigation and livestock purposes.[48] Given the expansion in acres of irrigated crops needed to utilize the hog manure produced, ground water use in Texas County has continued to increase, hastening the depletion of the aquifer.

Some western states now treat groundwater as a public resource rather than private property because of the concern over groundwater depletion. In Kansas, all groundwater users, except those who use it for domestic purposes only, must apply to use the water and must be able to justify the amount of water to be used.[49]

Though the goal of the Federal Clean Water Act of 1972 is to provide clean water for the nation, the current enforcement regime cannot be relied upon to ensure that Concentrated Animal Feeding Operations do not degrade water quality. It has failed to be strong enough to control CAFO growth in and between states. Several measures have been introduced to address this problem.

In March 1998, the Environmental Protection Agency and the United States Department of Agriculture joined forces to draft a Unified National Strategy for Animal Feeding Operations, proposing an enforceable water pollution control nationwide for large livestock facilities.[50] California Representative George Miller introduced an amendment to the Clean Water Act to strengthen regulation of industrial livestock operations. These regulations would cover manure application in relation to atmospheric and water pollution.

Although a general law for a wide variety of complaints and various geographic regions is not a "one size fits all" answer, corporate abuse of weak state or county policy is the reason given for the EPA/USDA initiative. U.S. environmental law is not answering grassroot concerns. The law is in its awkward infancy when compared to individual states and other developed nations.

European states have recognized the consequences of overuse of environmental capital and have promoted measures to control odor, nitrogen, and ammonia and phosphate emissions from livestock operations. These measures include: 1) economic incentive programs combined with a regulatory approach involving production quotas, manure manifests, application standards and fees; 2) public and private investment in research and development; and 3) environmental education.[51] As a compliment to these control measures, there are many technical adjustments and innovations used in Denmark, the Netherlands and Germany that can help address the odor and emissions problems of industrial livestock production.[52]

Summary

Most states have some form of waste regulation, but they vary widely and have changed frequently as the number of CAFOs have grown. Corporate swine supporters, oppose a legislation designed to protect the environment. They contend industrial swine facilities don't harm the environment and add that economic development is the leading issue. Citizen groups, such as the Panhandle-based Safe Oklahoma Resource Development Group, support reasonable regulation of the industry and believe the CAFO laws have been lax. They argue that maintaining a good quality of life is more important than short-term economic gain. These differences exist in many states with CAFOs and are reflected in the legislatures of those states. In 1997, 27 states took legal action against the rise in CAFOs, most against hog confinement specifically.[53] In 1998 a number of states enacted additional legislative packages addressing large livestock operations.

While the federal and state governments have enacted laws, few deal with odor and air pollution because of the difficulty in its measurement. Aspects of the industry generally addressed in legislation include training for facility operators, waste management plans, setback distance requirements, notification of neighbors and local governments, and the clarification of county jurisdiction. Minnesota's new Feedlot Hydrogen Sulfide Program is the first American effort to regulate odor and gaseous emissions from industrial swine operations.[54] Several states enacted moratoria on new or expanded confinement facilities, North Carolina, extended a short moratorium. In Nebraska, the state attorney general issued a nonbinding opinion affirming the state legislature's ability to declare moratoria on hog confinement industry expansion.[55]

Federal-level regulatory agencies are considering regulatory action on large hog confinement operations, while states, counties and townships are taking the beginning steps to manage the industry's impact on environmental capital for the benefit of society.

Oklahoma, particularly its Panhandle, provided the inexpensive land necessary for a processing plant, hog houses, manure lagoons and hog waste disposal. Further, the legal context provided ideal conditions for corporate farms, relatively lax environmental laws and even laxer enforcement, and easy access to water. In this context, what brought integrated corporate pork production to Texas County?

Texas County as a Site for Hog-based Industrial Recruitment

Agriculture has always been the economic base of Texas County and the county continues to be classified by USDA as farming-dependent.[56] Formed in the early part of the 20th century, Texas County was extremely rural. In 1910 Texas County residents numbered 14,249. Guymon had a population of 1,300, Hooker a population of 525 and Texoma a population of 372. They were the only incorporated towns in the County at the time of the 1910 census.[57]

By 1930 Guymon's population had increased to 2,200, Goodwell, Optima and Tyrone were incorporated and the county population was about the same as it was in 1910, approximately 14,100 people. The Dust Bowl caused a tremendous population drop in Texas County in the 1930s, leaving a 1940 population of 9,896 people. Just over one-half of the people in the county were outside of the seven cities in the county, and Guymon's population had increased slightly.

The county population increased rapidly in the 1940s, held steady into the 1950s, and increased by 1970 to 16,352. Meanwhile, the population of Guymon continued to increase. By 1980 the population of Texas County was 17,727, while Guymon had nearly 8,500 people. Only 4,172 people in 1980 lived outside of the seven Texas County towns.

The Guymon Hugoton Natural Gas field, which was the largest in the U.S., started to close in the 1980s. Phillips 66, Mobil and others had offices and employees located in Guymon. Offices closed and high-paying jobs left. Throughout the Panhandle, the press discussed the need to diversify the economy.[58] With the closing of the Swift Beef Packing Plant in 1987, population in Texas County dropped about 1,300 between 1980 and 1990.

The town of Guymon looked into dairy production as an alternative and by 1992 had formulated what seemed to be a workable plan. Then they learned that American Milk Producers (AMPI) would not allow anymore milk production in the region where Oklahoma is located. Kansas (in a different region) is able to expand milk production.

In August 1992, the Kansas-based Seaboard Corporation announced its intention to locate in Oklahoma. Guymon was the first community to respond, as it had been seeking a replacement for Swift for five years and was poised to bring in a dairy. Guymon was identified in 1993 in a nationwide study of rural self development and industrial recruitment as an industrial recruitment community. The classification refers to the economic development strategy used by the community, relying on outside resources to create income and jobs. However, to be successful, local resources and linkages must be mobilized as well. This mobilization creates a pool of capital, in this case from public sources, to cut costs to the corporation.

In 1994 and 1995, Seaboard purchased land in the area. Buying the land was crucial for establishing corporate-owned swine production, since few cattle ranchers wished to raise pigs under the terms of the contracts offered. The company acquired water rights under the land and the right to put some of the effluent hog manure on the land. Land would

later be resold to farmers with Seaboard retaining effluent application easements.[59] Although hog production began earlier, the packing plant started operations in Guymon in December 1995.

Seaboard is also active in Beaver County to the east of Guymon and to the west in Cimarron County. But Texas County serves as the epicenter of factory swine production in the Panhandle, where Vall, DeKalb Swine Breeders, and Hitch Pork Producers operate alongside Seaboard. Seaboard's growth has been phenomenal, processing no hogs as recently as three years ago. Seaboard's projection is to increase to 4 million head by the turn of the century.[60] Movement into Texas County by Seaboard Corporation was not just a response to market forces, but was a response to substantial inducements from the city, state and federal governments.

It is important to note that many of these sources of support are not available to non-corporate hog producers.

Public Funding and Industrial Recruitment

It was estimated that the public sector — federal, state, and local — have a direct investment of around $60 million in the Seaboard Corporation operations in Texas County. That capital was provided through publicly repaid bonds, taxes foregone, interest subsidies and grants (See Table 2 on pages 12 and 13). If Seaboard created 2,200 new jobs in Texas County, that is a public investment of $27,552.00 per job.[61]

What follows is an effort to assemble a picture of what kinds of monies were directed from various public sources to attract the industry to Guymon. The specific amounts involved in each case are noted. Much of Seaboard's gains from public investment depend on the ongoing history of specific types of loans, exemptions, and grants. Figures presented are the researchers best estimates based on the information available.

To build a processing plant and production facilities worth more than $200 million, Guymon offered and Seaboard accepted a panoply of government-supported tax-exempt bonds and tax exemptions that ultimately equaled one-third of the total cost in plant and infrastructure. Seaboard was not the direct beneficiary of all the incentives. Many of the assets are channeled through the city of Guymon, but all the subsidies and incentives listed in Table 2 were created to support the industrial recruitment of Seaboard Farms. Each incentive had a particular history and a reason to be used in the Seaboard package.

Because of a lack of clarity in government definitions, Seaboard has enjoyed both agricultural benefits (statutory protection from nuisance suits) as well as industrial benefits (the issuing of tax-exempt industrial bonds.) Seaboard was viewed as a regular Oklahoma corporation as well as an agricultural enterprise, and as such was able to extend its bond activity beyond the plant to the hog production facilities.[62] This designation allowed both manufacturing and agricultural exemptions for Seaboard, financing of the hog lagoons by Industrial Revenue Bonds as manufacturing facilities, as well as an agricultural exemption from sales tax as a farming facility. It is important to note that many of these sources of support are not available to non-corporate hog producers.

Revenue Bonds

The Guymon community signaled its open arms to Seaboard by granting $8 million in sales tax-supported general bonds that will

Table 2. Public Sector Incentives Used - compiled by Cornelia Flora and associates

Fund Source & Year Authorized	Instruments	Amount	Who Pays
Guymon Industrial Authority Approved 1992, issued 1993	Tax exempt general bond debenture sales tax bonds	$8 million (Total cost is $14.8 million with interest over 15 years). Seaboard buys bonds. Interest received is tax exempt on federal income tax, Seaboard as bond purchasers receives approx. $2 million tax break.	Federal government foregoes tax revenues. No cost to bond holders or to issuing government body. Taxpayers of Guymon and shoppers in Guymon. Nation's taxpayers.
Oklahoma Water Resources Board 1994	Tax-exempt bonds	$9.7 million in 1994. Placed on open market	No cost to bond holders or to issuing government body
Panhandle Telephone Service 1993	Rural Utilities Service excess funds	$100,000 $10,000 saved on 1 percent interest ($60,000 saved on 6 percent interest over 10 years).	Nation's taxpayers
State of Oklahoma 1994	Oil overcharge fund grant	$400,000	State taxpayers, who do not receive this amount in reduced cost of energy.
Guymon Industrial Authority 1993	Tax Increment Financing (TIF), tax-exempt bonds	$4.5 million 25 year bonds at 7.75 percent Purchased by Seaboard	Guymon taxpayers
Oklahoma Development Finance Authority 1995	Tax-exempt bonds	$20 million Industrial Revenue bonds (IRBs). Placed as AA bonds on the open market	Federal government foregoes tax revenue on interest earned by bond holders. No cost to bond holders or to issuing government body. Subsidy to bond holder.
State of Oklahoma	Exemption from sales tax	3.00 percent city sales tax 4.5 percent state sales tax	Taxpayers of Oklahoma and Guymon
Ad valorem taxes 1995	Exemption of ad valorem (property) taxes	$2 million tax relief each year, total $10 million.	Local exemption reimbursed by state; state taxpayer pays.
Federal government: Financed by HUD, administered through Oklahoma Dept. of Commerce 1995	Community Development Block Grant (CDBG)	$1 million originally half grant and half 0 percent loan, repaid $50,000 annually over 10 years by city of Guymon.	Nation's taxpayers
Enterprise Zone	Investment Tax Credit	$1 million annually (doubles with enterprise zone to $2 million). Used in lieu of quality jobs program.	Deductions off of state tax. State taxpayers
Oklahoma Department of Vocational and Technical Education (Vo-Tech) 1995	Training for Industry Program	$617,000 to train 4,800 workers.	State taxpayers
State of Oklahoma 1995	New job income tax credit	$2.4 million	State taxpayers

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Source: Flora, C., and N. Thompson, 1998.

Terms	Uses	Total Public Sector Costs
City of Guymon voted to increase sales tax from 2 percent to 3 percent for approximately 15 years. This is a 50 percent increase in local sales tax.	To provide funds for land and building acquisition for packing plant.	$16,800,000
Bonds repaid by Seaboard's monthly utility bills. (Income to utility was not available to maintain utility.)	Used to upgrade sewage treatment plant.	$4,700,000
Interest-free loan.	Economic development.	$10,000 (or $60,000 if interest rate is 6%)
Governor responsible for distributing oil overcharge funds from oil industry violation of federal price control.	Assist energy efficiency. Used to replace two boiler units in plant.	$400,000
Seaboard's taxes on the value added to the property for 25 years go to repay the bonds and interest.	Used to buy land (170 acres), plant and upgrade gas, sewer and water lines.	$6,038,839
Variable rate obligation bonds secured by Seaboard's promise to pay.	Bonds used to build hog lagoons for Seaboard in Texas County.	At least $5,000,000
All supplies for hog farms and plant purchased in Oklahoma pay no taxes.		At least $50,000 (More would be estimated except corporations do not buy many of their goods locally.)
Exemption for up to 5 years.	Eligible exempt property includes: land, buildings, improvements, machinery, fixtures and equipment, hog farms and plant.	$10,000,000
Create jobs to assist cities and counties with start-up or expanding companies that export out of Oklahoma.	Funding for infrastructure projects. Used to build Seaboard a new parking lot and water tower at the Seaboard plant.	$1,000,000
Estimated annually for 5 years, based on total investment.	Used to attract employment in distressed neighborhoods. Exemption from sales tax on construction.	$10,000,000
Does not cover employee turnover.	For qualified business for training new employees.	$617,000
$500 per employee.		$2,400,000
	TOTAL	**$60,615,839**

cost Guymon taxpayers $14.8 million over the 15 years.[63] The sales tax debenture bond helped to finance construction of the new processing plant. Sales tax in Guymon increased from 2 percent to 3 percent, in addition to Oklahoma's 4.5 percent sales tax. All who shop in Guymon pay the tax. As a consequence, a division formed between many county residents and the residents of Guymon even before the first brick was laid for the plant. Seaboard purchased the bonds, earning an interest rate of 8.5 percent, which will return an additional $6.8 million to them in interest.[64]

Tax-exempt Bonds

According to the researchers, the Oklahoma Water Resources Board issued at least one tax-exempt bond in 1994 for $4.7 million. Seaboard purchased the bonds. These bonds were to improve the city's water system and to upgrade its sewage treatment plant. Seaboard's monthly utility bills repay the bonds. The city must use that revenue to repay the bonds, not to maintain the facility. Other utility users pay for the maintenance, which has been high as the facility gets up and running.[65]

In the original bond offering, the water treatment facility was owned by the city but used by Seaboard to treat the water from the processing plant. However, difficulties in operation led the city council to raise the issue of the facility's sale in September 1998. The pretreatment facility was opened for bids and Seaboard was the highest bidder, offering the $4.4 million still owed on the facility. Though this would have relieved Guymon's citizens of the cost of plant maintenance, the proposition was defeated in December 1998 with only 10 percent of those registered voting. However, in April of 1999, Guymon residents voted to sell the waste water treatment plant to Seaboard for $4.4 million.[66]

Grants

In 1992 Seaboard began renovation and construction on the former Swift (a subsidiary of ConAgra) meatpacking plant in Guymon. At this time, then-Governor Walters provided the $400,000 in oil overcharge funds to assist with energy efficiency at the plant. Part of the funds ($150,000) was in the form of a grant and part of the funds ($250,000) was in the form of a loan. However, after Governor Keating took office, the remainder of the loan was converted to a grant.[67]

Interest-free Loans

In 1993, the Panhandle Telephone Service in Oklahoma obtained a $100,000 interest free loan for Seaboard from the federal Rural Utilities Service, the successor to the Rural Electrification Administration (RUS). At the time, the RUS had excess funds available as a result of early loan repayments from other borrowers and was seeking to use those excess funds to promote economic development. While Panhandle Telephone sought to obtain loans for other projects as well, the RUS only approved the loan for Seaboard. Under the loan arrangement, Panhandle Telephone is responsible for the loan if Seaboard defaults. The loan is interest free and must be repaid within 10 years.[68]

Tax Increment Financed Bonds

In 1994, the Guymon Industrial Authority issued $4.5 million in bonds (Seaboard was again the purchaser) to be used by Guymon to acquire 170 acres of land and to acquire and renovate the meatpacking plant, including upgrading of gas, sewer and water lines. The plant was then to be leased by the city to Seaboard for a nominal amount and later sold to the company.[69]

The bonds carry an interest rate of 7.75 percent and are to be repaid by the year 2017. To repay the bonds, the city is using "tax

increment financing" (TIF), which allows cities or counties to use local taxes and fees to assist in development financing or public investments. In a TIF district, any taxes collected on increased property values are used to pay for projects anticipated for the area.[70]

In Seaboard's case, the *ad valorem* (property) taxes the company will pay on the post-development value of the site will be used to pay off the bonds.[71] Since Seaboard is the bond purchaser, it will repay itself with interest. Repayment of the bonds plus interest counts as a business expense on taxes. The interest Seaboard pays itself on the bonds is tax-free. Repayment on the TIF bonds will begin after the expiration of the five-year *ad valorem* exemption period described below.

Tax Increment Financing for economic development in distressed areas was new in Oklahoma in 1992 and had not yet stood up to the legal challenge when suggested for Seaboard's use. State officials favored the more conservative exemption from local sales taxes for five to six years over the TIF package, but Seaboard favored receiving money up front.[72]

The city of Guymon came to an agreement with Seaboard about the implementation of the project and its goals to: "expand employment in the area, attract major investment, enhance the tax base, and make possible investment, development and economic growth which would otherwise be difficult or impossible without the apportionment of *ad valorem* taxes...."[73]

The bond money did not go to Seaboard but to the City of Guymon to acquire 170 acres for the plant and to upgrade public gas, sewer and water lines. The land was then leased to Seaboard, a necessary provision of TIF. After the TIF regulations had been met, Seaboard purchased the plant and land in order to take advantage of other incentives.[74]

The taxes due on the original or pre-development value of the Seaboard site continue to be paid to the county for use by the Guymon School District, Texas County, and the Texas County Health Department. These taxes amount to only $9,700 annually. Seaboard also agreed to pay $175,000 annually for 25 years to the Guymon School District to help compensate for the lost tax revenue.[75] However, even when it was believed that total investment in the site would be $65 million (it has turned out to exceed $100 million), the amount of tax revenue that would have gone to the school district was estimated to exceed $300,000.[76]

Texas County and the Texas County Health Department will receive nothing more than their share (about $2,000) of the $9,700 paid each year on the original value, even though the plant and its workers generate substantial need for additional public services -- health services, police force, parks and recreation, the court system, etc.

Because of the burden tax increment financing districts can have on governmental entities such as schools and cities, some governments have placed limits on their use. At least one city government requires that a substantial portion of the taxes paid on the increased valuation continue to go towards property tax recipients, like the school.[77]

Tax Exemptions

Oklahoma's five-year property tax exemption for industry is standard practice, even though the state has one of the lowest property tax rates in the country.[78] Other areas give out liberal abatements but not necessarily exemptions. Kansas reports that property tax abatements as an incentive to attract new industry "provide the single most important tax incentive at the state and local level."[79]

Seaboard is also receiving a five-year tax exemption on *ad valorem* taxes for land, buildings, improvements, machinery, fixtures and equipment at the Guymon plant. To qualify, a company must make an investment of $250,000 and hire 15 new employees who will be given basic health benefits.[80] The state allows the exemption for new and expanding manufacturers so Seaboard is able to receive another five-year exemption on any expansion made at the plant, even after the initial investment.

In addition, the state has taken the position that since all of Seaboard's operations are "integrated" in a "closed loop," the *ad valorem* exemption applies not only to the processing plant but also to Seaboard's production and processing facilities. Therefore, the exemption can be taken on the processing plant, the feed mill, and the nearly 100 CAFO production sites located in Texas County.

The state reimburses local jurisdictions for the lost *ad valorem* tax revenue. Consequently, the state's taxpayers, rather than Seaboard, are paying the taxes on the company's property. The first year of the exemption for Seaboard was 1996, when they paid only $180,000 on an $880,000 tax bill. The remaining $700,000 was paid by the state.[81] In 1997 the company paid $300,000 on a $1.5 million tax bill. The state reimbursed the county the remaining $1.2 million.[82] About $17,000 of this amount was attributed to the feed mill and $450,000 to the processing plant.[83] Assuming a $1.2 million reimbursement to Seaboard for each of the next three years, the total tax bill borne by the state taxpayers over the five years will be a minimum $5.5 million.[84]

Under this same taxpayer funded program DeKalb Swine Breeders (the 9th largest pork producer in the nation) and Pig Improvement Company (26th largest) are also receiving benefits. Both pork producers claim exemption as "research and development" companies. For instance, the state reimbursement to Beaver and Texas counties for exemptions claimed by DeKalb in 1996 totaled nearly $34,000. In 1997, taxpayers reimbursed Texas County about $5,000 on behalf of DeKalb. The state reimbursed Kingfisher County nearly $22,000 in 1996 on behalf of Pig Improvement Company.[85]

In 1997, 37 counties in Oklahoma participated in the *ad valorem* tax exemption program. Texas County ranked fifth in the state (behind Oklahoma, Tulsa, Muskogee and Carter counties) in the amount of disbursements by the state on behalf of companies.[86]

Community Development Block Grant

In 1995, the state awarded the city of Guymon a $1 million Community Development Block Grant (CDBG) for water, parking and roadway improvements. These are pass-through federal funds from Housing and Urban Development (HUD). One-half of the funds are in the form of a loan and one-half are in the form of a grant. The loan is interest free and must be repaid by the city of Guymon in 10 years.[87]

HUD Community Development Block Grant assistance targets one of three national objectives for communities: urgent need, slum or blight, or as a benefit for low-to-moderate income persons through job creation. The latter was the reason Guymon was granted the money. The funds were issued to Guymon, which must pay back the loan portion of the fund ($500,000 interest free) in annual payments over 10 years. Since Seaboard easily fit the job creation goals of HUD, the money was granted without looking at the size of the labor pool, the types of jobs being offered, who would fill those jobs, or the increased public services required to satisfy these new employees. These funds issued to the city were used for water and waste infrastructure and road improvements,

specifically a parking lot for the plant and a water tower placed at the plant site but owned by the city.[88]

Seaboard and an affiliate company used at least $20 million in tax exempt financing from the Oklahoma Development Finance Authority to build lagoons at some of their production facilities in Texas County.[89] It is important to note that this source of support is not available to non-corporate hog producers.

Worker Training

Oklahoma's Training for Industry Program has also provided assistance to Seaboard. Under the program industries creating new full-time jobs with health benefits are eligible to receive free job training.

For Seaboard's pork production facilities, the state provided training in breeding, farrowing, nursery, growing and finishing. At the processing plant, the state has provided company orientation, safety, management training, quality assurance, maintenance, butchering, boning, equipment/tools handling, Spanish, and other pre-production training.[90]

The Seaboard training involved 4,800 new employees at a cost of $617,000 to the state.[91] The High Plains Institute of Technology in Woodward provided the training. Panhandle State University has also provided Seaboard employees training in welding and computer applications, but the company has paid the instructional cost of that training.

Texas County used the standard policy approach of creating new jobs as a catalyst for economic development. What was needed was not new jobs but a chance to lessen the gap among locals by creating wealth from within the region rather than from outside. The emphasis on economic development favors job creation, without recognizing the types of jobs that are being created or whether the community was as socially and culturally prepared, as a community development approach would encourage.

What was needed was not new jobs but a chance to lessen the gap among locals by creating wealth from within the region rather than from outside. The emphasis on economic development favors job creation, without recognizing the types of jobs that are being created or whether the community was as socially and culturally prepared, as a community development approach would encourage.

Thus, in a plant with approximately 2,200 employees, as the TIP program does not train for turnover jobs, were the other 2,600 employees all trained for the 100 or so hog production facilities? Texas County had low unemployment and a relatively satisfactory earnings structure before Seaboard's arrival. However, Texas County's per capita income in 1996 was more than 13 percent lower than when the company first began operations in Guymon. Comparison counties experienced a slide in per capita income about one-third as severe over the same period.[92]

Enterprise Zone

Most rural enterprise zones (EZs) have a single objective: to increase jobs and income. EZs tend to fall into one of two categories, favoring either economic or community development, with rural areas like Guymon falling into the economic development type.[93] EZs were created to "strengthen the free-market environment in depressed areas through relief from taxes, regulations, and other government burdens, improvement of some city services, and involvement of private, neighborhood organizations."[94] In Oklahoma EZs are designated in "either disadvantaged coun-

ties, cities or portions of cities,"[95] with high unemployment or a labor surplus.

EZs should ideally be the link between supply-side and demand-side economics, balancing the bringing of industry into areas with a local labor supply. All of the counties designated as EZs in Oklahoma are disadvantaged high-unemployment, labor-surplus areas. Only 16 of the state's 77 counties have a labor surplus.[96] In all 16 cases between 20 percent and 30 percent of the adult population averages a literacy rate of level-one—the lowest possible— tied to poverty, crime and unemployment.[97] Texas County is not included in the list of counties.

Oklahoma created an EZ to fit a corporation's requirements for location. Seaboard did not locate in one of the many enterprise zones available within Oklahoma that needs jobs and higher income, but instead found its location according to its own plans and dictated to the state where the enterprise zone was to be.

Oklahoma allows EZs to whoever qualifies on a noncompetitive basis. There are also 55 cities and 92 municipalities within Oklahoma which are designated EZs waiting for a Seaboard-type of industry to come to their rescue. Not one high-need EZ is in Texas County. The EZ in Guymon has the lowest unemployment rate of all enterprise zones in the state (2.3 percent).[98]

An EZ is required to have a median household income below 80 percent of the state average, which in 1991 was $23,576.[99] The EZ in Guymon (though not a part of the city officially at the time of its inclusion) was an irregular triangle including about 40 people in an area of about two square miles. Though Guymon is a small town, this is a small population for so large an area. The reason this designated industrial zone was shaped to these legal specifications was to satisfy the investment tax credit aspirations of Seaboard. This was no EZ suffering from poverty and unemployment, but a planned enterprise zone package taking advantages of legal loopholes.

Oklahoma created an EZ to fit a corporation's requirements for location. Seaboard did not locate in one of the many enterprise zones available within Oklahoma that needs jobs and higher income, but instead found its location according to its own plans and dictated to the state where the enterprise zone was to be. Guymon has an EZ where Seaboard is located, and Seaboard is allowed to take $2 million annually for five years in investment tax credit instead of $1 million. In addition, the fact that this area is considered an EZ makes it easier to gain further incentives, such as low interest loans and exemption from local taxes.[100]

Tax Credits

Seaboard is also taking advantage of the state's Investment/New Jobs Income Tax Credit. Seaboard had applied to participate in the state's Quality Jobs Program (QJP) which provides cash payments to a company of up to 5 percent of new taxable payroll for a period of 10 years. However Seaboard withdrew its application, presumably after concluding that the Investment/New Jobs Income Tax Credit was more beneficial. A company must choose one or the other of these programs, and Seaboard apparently decided that the five-year tax credit based on investment in depreciable property or an increase in the number of employees provided more financial incentive than the 10 year cash payment from the state based on payroll.[101]

The Investment Income Tax Credit allows companies investing at least $50,000 in depreciable property to take an income tax

credit of 1 percent times the amount of investment for a period of five years. Seaboard received an investment tax credit in its creatively designed enterprise zone. The amount is doubled for companies locating in an enterprise zone making Seaboard's credit worth nearly $10 million over 5 years. The New Jobs Income Tax Credit allows a credit of $500 per new employee earning $7,000 or more per year.[102] If one assumed that all workers taking the training program would qualify for the new jobs tax credit, that total would be $2.4 million (4800 new employees x $500).[103]

Investment tax credits in Oklahoma are available to any manufacturer who holds a manufacturer's exemption permit. The manufacturer may choose between the maximum limit $1 million tax credit (doubled in enterprise zones) taken in the form of 1 percent of the qualifying investment, usually depreciable property, or $500 per new employee, whichever is larger. The credit is taken directly from the annual income tax return report. If the employer opts for the tax credit, that employee is not eligible to participate in the Quality Jobs Program. In QJP a direct cash-back incentive of up to 5 percent of new payroll is offered back to employers for up to 10 years. As the area in which Seaboard was locating had been made an enterprise zone, the company opted to use the investment tax credit, thereby doubling it from $1 million to $2 million. In 1997, Seaboard posted a tax liability for its combined corporate operations of a negative $14 million.[104]

While the state will not release information on the exact amount of investment/new jobs income tax credit claimed by Seaboard, if the company is using the investment tax credit, it is now eligible for an estimated $2 million annually in tax credits on its more than $100 million worth of investments in Texas County.[105] This amount would have increased each year that Seaboard was "ramping up" its operations in Guymon. Use of the jobs income tax credit might provide even more money, depending on the number of new jobs being created.

In 1993 Texas County's per capita income was the fourth highest at $22,107.[111] Texas County's per capita income in 1996 [after Seaboard's arrival] was $19,204, 10th highest in the state's 77 counties.

Highways

Texas County highway funds increased a significant amount in the five-year funding plan. Much of this was due to adding lanes to the county's major artery, U.S. Highway 54, which cuts diagonally through the area. The industrial swine operations will enjoy the use of those new roads to transport 4 million pigs to the plant and 1 billion pounds of pork and pork by-products from the plant.[106]

Is Job Creation the Issue?

The primary consideration of states' incentives and bonds is to promote the creation of jobs.[107] Oklahoma has several work programs providing tax credits and training paid for by the state to attract jobs for available labor. In a March 1998 interview the Oklahoma Secretary of Commerce, Ron Rosenfeld, said: "The single most important challenge to Oklahoma, as we face competition from other states and regions, is to attract and retain jobs that enhance the economic well-being of Oklahoma."[108]

Evidence shows, however, that it was not the residents of Texas County who enjoyed the benefits of Seaboard's jobs, but outsiders who moved into the area. Jess Nelson, Mayor of Guymon, said in 1997: "Well, I'd

say everybody in Texas County who wants to work is working. A number of people in Texas County have gone to work out there [Seaboard]. But the vast, vast majority of the people who work there come from other areas because we didn't have the unemployment."[109]

Seaboard built a $100 million pork processing facility, creating new jobs in a county that had a low unemployment rate (3.7 percent) in 1992.[110]

In 1993 Texas County's per capita income was the fourth highest at $22,107.[111] Texas County's per capita income in 1996 [after Seaboard's arrival] was $19,204, 10th highest in the state's 77 counties. The average hourly wage in Texas County was $9.13 an hour or $18,979 per year for 1996.[112] That wage data excludes employment in manufacturing, which is suppressed in Texas County because of the possibility of identifying the employer (Seaboard). However, the prevailing hourly wage in Oklahoma for precision food manufacturing workers is an average of $7.75 an hour or $16,120 per year.[113]

Oklahoma currently boasts 43 economic development communities that work closely with the Department of Commerce Recruiting Team to attract new industry to the state with an emphasis on attracting and retaining jobs. They keep track of what dollars have been invested in recruitment projects ($446 million in 1998) and how many jobs have been added to the economy (6,952 or more than $64,000 per job in 1998). They do not track wage rates or the composition of the labor force.[114]

It is also worth mentioning that there is little opportunity for local residents to participate in the growth of a company such as Seaboard through investment. While Seaboard Corporation stock is listed on the American Stock Exchange, it is rarely traded since approximately 75 percent of its shares are owned by the Bresky family of Boston. Seaboard stock transactions appear in the Wall Street Journal approximately once a week. There are an average of approximately 1.5 million[115] outstanding shares. About 1,000 to 2,000 shares appear to turn over each week.[116]

Relative Effectiveness of the Industrial Recruitment Strategy for Rural Restructuring

Guymon is a case of state-directed, rather than market-driven, introduction of new economic activity. Assuming that the purpose of using public funds to bring integrated value-added animal production to certain areas has been to stabilize rural economies and contribute to their improved well-being, how have the results measured up against the purpose? It is helpful to think of the issues involved in terms of the intersection of four different forms of capital available for investment in the future of rural areas: financial/constructed, human, social and environmental.

Impacts

on Texas County: The Importance of Four Types of Capital

Communities have many ways of knowing if they are successful in their efforts to build a better future. When communities are asked how they know if their community is moving toward their desired future, they generally give five basic answers:

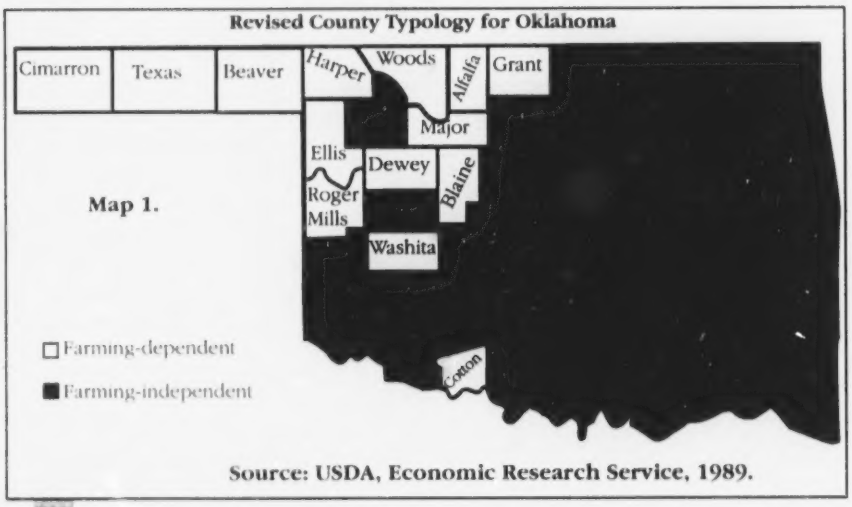
1. increased use of the skills, knowledge and ability of local people,
2. strengthened relationships and communication,
3. improved community initiative, responsibility and adaptability,
4. sustainable, healthy ecosystems with multiple community benefits, and
5. appropriately diverse and healthy economies.[117]

These five areas can be viewed as the range of resources available to a community. When they are invested to create new resources, they can be referred to as "capital." Flora et.al, in their research, found it useful to classify community-level impacts by measuring changes in 1) human capital recognition, use and increase of the skills and knowledge of local people; 2) social capital relationships and communications and community initiative, responsibility and adaptability; 3) environmental capital ecosystem health and community links to the environment and 4) financial and constructed capital, appropriate diverse and healthy economies, indicated by levels of poverty, business efficiency, material assets of local people, and diversity of the economic base.[118]

How do we know if the changes took place as a result of industrial recruitment? To prove causality, there must be 1) time order, the location of Seaboard Corporation must precede the impacts analyzed; 2) co-variation, a change in conditions before Seaboard's location in Texas County and after Seaboard's location in Texas County, and 3) elimination of rival causal factors--things other than the location of Seaboard Corporation in Texas County that could have caused the changes.

Of course, it is never possible to eliminate rival causal factors, as there are an infinite number of other events--including changes in the state economy, changes in relative agricultural prices, changes in national crime rates, increasing or decreasing national prosperity-- that could account for the changes noted.

In an attempt to see if the changes might indeed be attributed to the recruitment of industrial swine production to the county--this section compares changes over time in Texas County to changes in the other farming-dependent counties in Oklahoma (Alfalfa, Beaver, Blaine, Cimarron, Cotton, Dewey, Ellis, Grant, Harper, Major, Roger Mills, Washita, and Woods).[119] All the farming-dependent counties in Oklahoma are included in the analysis (see Map 1 on page 22). Farming contributed a weighted annual average of 20 percent or more of total labor and proprietor income over the three years from 1987 to 1989 in these counties. It should be re-



membered that other counties on this list likewise host other industrial hog operations. However, even when there are statistically significant differences in rates of change, one cannot positively lay the responsibility entirely or partially to the industrial recruitment strategy.

For example, in 1990, Texas County had a population of 16,419, 44 percent greater than the next two largest farming-dependent counties, Blaine (11,470) and Washita (11,441). Thus, any changes may be due to initial county size, instead of, or in addition to, the recruitment of industrial swine production. The study used a wide variety of indicators for each of the capitals that may be affected.

Economists refer to costs associated with a firm but not included in its earnings and costs as externalities. Some of these costs are borne by private individuals, local governments or the nation as a whole, either through a reduction in the quality of the resources or through remediation, such as cleaning up a polluted stream. Some of these externalities have dollar values. Others do not.[120] Communities considering confinement hog operations need to consider externalities in light of the vision they have for their community in the future.

In looking at the impact of integrated corporate hog and pork production in Texas County, the study compared the county to itself over time and also compared the county to counties with similar initial economic bases. Thus indicators were chosen for three types of capital--economic, human and social--that we could compare across time and place.

Impacts on Financial and Constructed Capital

Concern about financial capital stimulated Guymon to choose industrial recruitment as a development strategy. It is important to look at the indicators of changes in financial and constructed capital to see if the first goals of industrial recruitment were met.

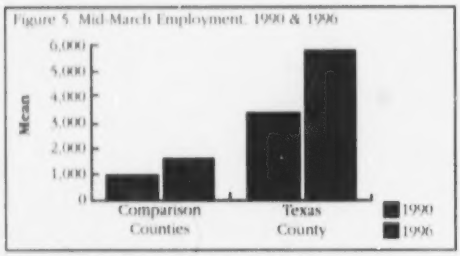
An Oklahoma State University study estimated the economic impact of the swine industry in Oklahoma, including its backward linkages to input suppliers and forward linkages to slaughter and processing facilities. The study estimated the swine industry to provide 18,542 jobs and generate $501.3 million in income--an average of $27,035.92 per job created in 1997.[121] However, most of the supplying industries are outside the state and most of the producer income goes to the corporations.

These are optimistic figures. The average income used in the IMPLAN model, (as used by Willoughby et. al) for swine production employees and proprietors is $35,137[122], while the average for swine processing is $37,764.[123] That is nearly twice the amount

earned by a $9 per-hour wage worker. It is also far higher than the average rate of pay for food manufacturing workers in the Oklahoma Wages Survey Report.[124] If the wage figures used for the new jobs were lowered to the average wage paid in that industrial category in Oklahoma, the number of jobs created and the amount of income generated would be less than half the cited amount.[125]

In order to examine the impact of integrated hog production on the four community capitals, Dr. Cornelia Flora and her associates set up a retrospective quasi-experimental design. The study took all the farming-dependent counties in Oklahoma prior to 1993, when Seaboard came to Texas County. The researchers sought measures of the capitals before and after that date to observe the changes.

It is not enough to compare Texas County to other counties at the current time, because they may have begun at different starting points in terms of the four capitals. Further, it is not sufficient to compare Texas County to itself over time and attribute all the changes to the presence of Seaboard. Thus a comparison was done of all the other counties to Texas County at two points in time. Particular attention was paid to the differences in the rate of change over time whether it was positive or negative and how the percent change in a variable in Texas County compared to the percent changes in the other counties. The researchers used a difference of means test, which looks at both the absolute difference in the mean value of the rate of change (for Texas County, that was the same as the rate of change) between Texas County and the other farming-dependent counties. If the difference in the means, using a confidence interval of 0.05, was found to be significant, then the result arrived at was that the presence of Seaboard made a difference.



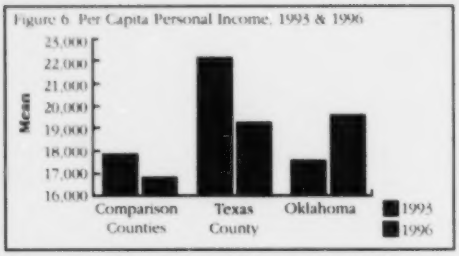
Source: U.S. Dept. of Census, 1997.

Lack of significance is due to either of two reasons. First, the absolute difference is too small to be due to more than chance variation. Or second, the degree of variation in the means of the other farming-dependent counties is so great that one or more of them could have the same degree of change as Texas County.

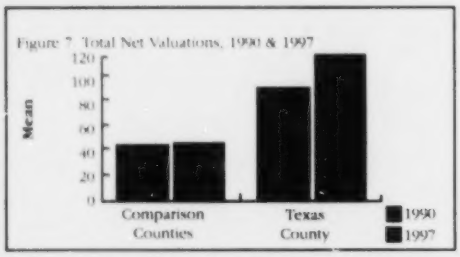
The researchers chose the indicators for the capitals based on the degree to which they were part of the resource to be examined. Data was sought from a wide variety of secondary sources. In some cases, local offices directly furnished the data. In other cases, data was obtained from state or federal sources.[126]

Jobs

Texas County did add jobs. However, so did the other farming-dependent counties. Texas County's mid-March employment increased 72 percent between 1994 and 1996--from 3,375 to 5,789. In 1990, the comparison counties (farming-dependent counties, excluding Texas County) had increased 61 percent from 976 to 1,565 (see Figure 5).[127] Both increases are impressive, although the difference in the rate of change is not statistically significant. A lack of statistical significance means that, to a researcher, the difference between Texas County and the comparison counties could have happened by chance and not be-



Source: Oklahoma Dept. of Commerce, 1998.



Source: Oklahoma Tax Commission,, 1990 & 997.

cause of Seaboard. It is equally possible that the increase in all counties was due to a general upturn in the state and national economy.

Income

Are the jobs in farming-dependent counties quality jobs? One way to gauge that is by examining the wages paid to those employed. In 1996 the average weekly wage in Texas County was $364.99. The average weekly wage in all the other agriculture-dependent counties was $348.40. Assuming an individual worked 52 weeks during the year, he or she would be paid $18,979.48 in Texas County. With the same assumptions in the other farming-dependent counties, an individual would have earned $18,116.80 in 1996. The starting pay at Seaboard was $7 an hour or $280 a week. Working 52 weeks a year, an individual would earn $14,560. This is below the HUD figures for a very low-income four-person family for 1996.[128]

Per capita income decreased 14 percent in Texas County between 1993 and 1996, from $22,107 to $19,204, moving Texas County's per capita income from fourth in the state to 10th (see Figure 6).[129] Per capita income also declined in the other farming-dependent counties, from $17,815 to $16,819. At the same time, per capita income in Oklahoma as a whole increased from $17,510 to $19,574. Indeed, Texas County's per capita income decreased more than in comparison counties during that time period. It is important to note that per capita income (which includes farm income, wages, transfer payments of various types, and earnings on investments) is particularly unstable from year to year in farming-dependent counties, such as those analyzed here.[130]

The development strategy involving Seaboard's recruitment focused on increasing the tax base by bringing in new industries and jobs that would go to outsiders rather than raising the income of local people.

The industrial recruitment model in the late 20th century does not favor increased wages in rural or economically distressed areas, but instead offers wages consistently lower than the per capita incomes. The 2,200 jobs in Seaboard's plant and the 1,300 jobs in its production facilities and feed mills begin at $7 per hour and average $8.31 per hour,[131] or $14,000 to $16,620 annually, and are considered very low income for a four person family in Texas County in 1998.[132] In addition, historically U.S. packing plant turnover averages 120 percent annually and many employees are never at one plant long enough to either earn the average wage and benefits or to establish roots in a community.

Tax Base

The next major reason given for industrial recruitment was to increase the tax base of Guymon. This happened. Texas County's total net valuations, which are the assessed values of property regardless of tax status (personal residence and industrial), increased

from $92 million to $120.3 million, an increase of 30 percent. However, much of the taxes on that increase in assessment value are abated. The comparison counties, which began from a far lower mean of $44.5 million, increased modestly to $46.9 million (see Figure 7).[133]

Total taxes assessed in Texas County showed a significant percent change over the mean change in the other farming-dependent counties. Texas County began with a net assessed valuation of $70.1 million. That increased to $99.8 million (a 42.4 percent increase) between 1990 and 1997, whereas the mean of the other 13 farming-dependent counties began at only $30 million and increased to just $30.2 million between 1990 and 1997 (see Figure 8).[134] The increase in Texas County of total net taxes assessed was an impressive 42 percent compared to 7 percent in the other agriculture-dependent counties. However, not all of the taxes assessed were collected, due to tax abatements.

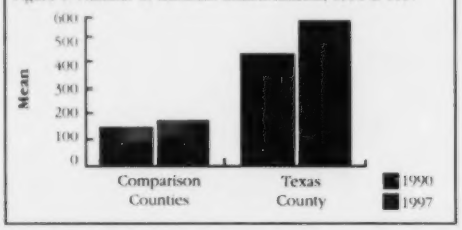
It is important to realize that many of the increased taxes and increased valuations are in the tax increment financing area and go to pay off the bonds for Seaboard. However, there is a recoverable tax increase that the state of Oklahoma paid to compensate for the tax forgiveness given to Seaboard. Consequently, there was indeed an increase in the tax base. Tax revenue went up as well, thanks in part to the other taxpayers of Oklahoma.

Figure 8. Net Taxes Assessed Locally, 1990 & 1997

*Please note that the data shown reflect taxes assessed, not taxes collected

Source: Oklahoma Tax Commission, 1990 & 1997.

Figure 9. Number of Business Establishments, 1990 & 1997



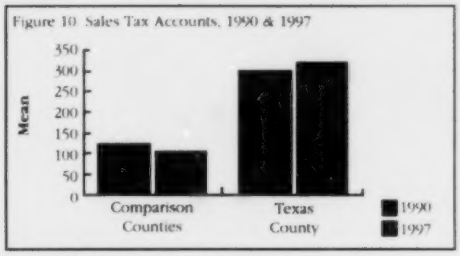
Source: Oklahoma Dept. of Commerce, 1990 & 1997.

Business Activity

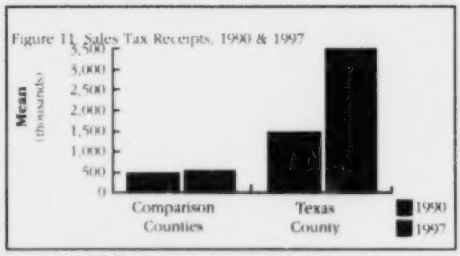
Increase in business activity is a part of financial capital viewed as critical by the people in Guymon who sought industrial recruitment for community development. The study looked at three different measures of business activity: 1) business establishments as reported to the Oklahoma Department of Commerce, representing total business activity, 2) number of registered sales tax accounts, and 3) sales tax receipts, measuring retail trade.

The number of business establishments reported by the Commerce Department increased 29 percent in Texas County, from 446 business establishments in 1990 to 600 in 1997 (see Figure 9).[135] The percent increase in the other farming-dependent counties was 15 percent, from 163 to 189 between 1990 and 1997.

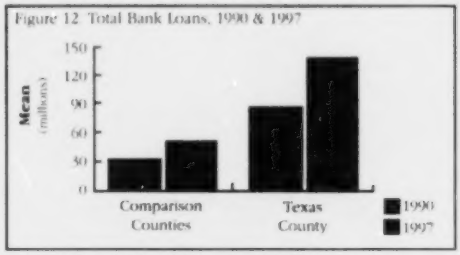
Residents of Guymon voted to increase their local sales tax by 50 percent (from 2 percent to 3 percent) to provide an $8 million incentive for Seaboard to locate there.[136] Since Guymon is the retail trade center for the region, the city sales tax becomes a defacto area-wide sales tax, because area residents must travel to Guymon to do most of their purchasing.[137] Resentment to this further extended the gap between county and city.



Source: Oklahoma Tax Commission, 1997.



Source: Oklahoma Tax Commission, 1997.



Source: U.S. Federal Reserve, 1997.

In anticipation of Seaboard's arrival and the presumed expansion of local labor forces and improved income levels, 62 new retail service businesses opened in Guymon between 1993 and mid-1995. With this expansion of retail activity, sales tax revenues increased 13 percent in 1993 and 7 percent in 1994.[138]

The number of registered sales tax accounts decreased in the other farming-dependent counties while they increased slightly in Texas County (see Figure 10).[139] The difference in the rate of change is statistically significant. The other farming-dependent counties had an average of 122 sales tax accounts in 1990 compared to 297 in Texas County. That average decreased 14 percent in the other farming-dependent counties. It increased 8 percent in Texas County.[140]

The 1990s were a period of consolidation of retail trade into trade centers and into the large discount stores. Thus, Texas County was able to hold steady during a period of rural retail trade decline. Of course, starting with a larger critical mass of sales tax collecting establishments gave Texas County an initial advantage; thus, the increase can not be attributed totally to the industrial recruitment activity. Looking at these two indicators in terms of business activity, we see that there is a significant difference in the rate of change between Texas County and other farming-dependent counties in the state.

The difference in rate of change in sales tax receipts returned to the county between 1990 and 1997 was significant between Texas County and the other farming-dependent counties. Sales tax receipts increased 137 percent in Texas County compared to only 12 percent increase in the comparison counties.[141]

Further, the sales tax rate increased 10 percent in Texas County, while the mean sales tax rate increased 12 percent in the comparison counties. As the sales tax receipts increased at a far greater rate than the sales tax collecting establishments, some retail merchants benefited with the coming of Seaboard Corporation to Texas County (see Figure 11).[142]

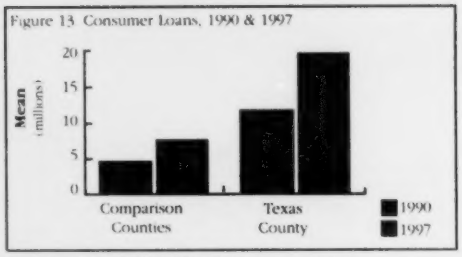
Bank Activity

Changes in financial capital should be reflected in the activity in local banks. How are local banks doing in Texas County compared to other farming-dependent counties? The study examined total bank assets, bank deposits, total loans, consumer loans, and commercial and industrial loans. The information helps determine the degree to which income earned and profits generated are recirculating within the county.

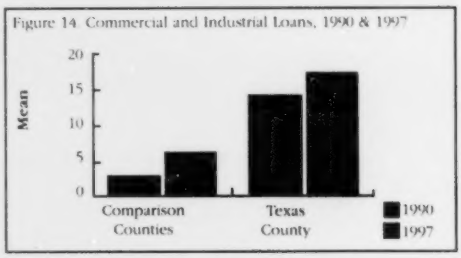
Total bank assets increased in both sets of counties, 11 percent in Texas County and a mean increase of 12 percent in the other agricultural counties. The availability of capital in Texas County has not increased at a rate more rapid than other farming-dependent counties. Of course, Seaboard Corporation, except for the use of public capital, does not access local financial capital. Bank deposits increased a modest 7.6 percent in Texas County compared to a mean increase of 9.7 percent in the comparison counties.[143]

Is more capital circulating within the county and is that change different than the changes in the comparison counties? Changes in total loans give an indication of local capital recirculating within the county (see Figure 12).[144] Total loans increased dramatically in both Texas County and the comparison counties. Loans increased 58 percent in Texas County, from $87 million in 1990 to $138 million in 1998. The comparison counties increased 43 percent, from $34 million in 1990 to $52 million in 1998. However, that difference in rate of change was not statistically significant, which means that the impact of Seaboard Farms on the Texas County capital cannot be proven.[145]

The loan deposit ratio increased 24 percent in the comparison counties, compared to a 47 percent increase in Texas County. The .67 loan deposit rates in Texas County in 1997 suggest that local capital is being used locally. That is a good sign, showing bankers are responsive to citizen demand. However, most of that use is in consumer loans, rather than in investment in businesses to create new capital. Consumer loans increased more rapidly in Texas County than in the comparison counties, although that difference was not statistically significant; while commercial and industrial loans actually increased more rapidly in the comparison counties, increasing at a rate of 88 percent (see Figure 13).[146]



Source: U.S. Federal Bank Reserve, 1997.



Source: U.S. Federal Bank Reserve, 1997.

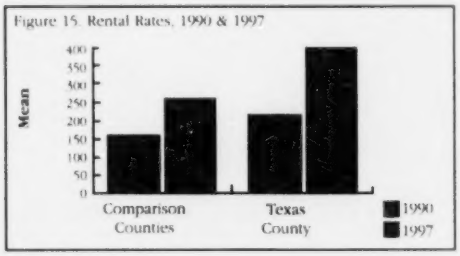
Commercial and industrial loans went from an average of $3,715,000 to $6,222,000 in the comparison counties, compared to Texas County, which reported a modest increase from $13,738,000 to $17,133,000. The private capital invested in Texas County during this period was not local capital. Therefore, the interest on that capital was also not returned to the local area. If strong forward and backward linkages result from large integrated hog operations, they are not yet apparent in Texas County by 1997 (see Figure 14).[147]

Housing

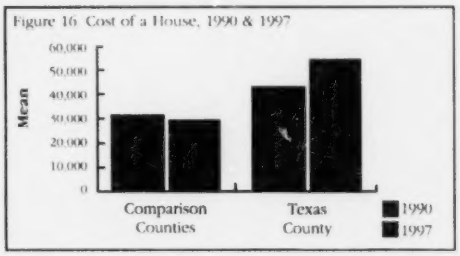
Property owners did well in Texas County in terms of return on investment. Housing rental rates increased 84.5 percent in Texas County, going from an average of $218 a month to $400 a month. This compared to an increase in rental rate of 61 percent in the comparison counties, from $161 a month mean rental rate to $257 a month mean rental rate. The difference in the rate of increase is statistically significant (see Figure 15).[148]

High influx of workers causes disequilibriums in housing markets. For example, several families of laborers moving into an area to work in industrial agriculture may occupy the same rental housing in order to cover costs as rental rates increase. Within a short time, differences between the rental rates of old and new housing start to disappear, affordability no longer bearing any relationship to quality of shelter even as overcrowding worsens.[149]

Texas County experienced significant rises in real and personal property assessment in



Source: U.S. Dept. of Census, 1997.



Source: U.S. Dept. of Census, 1997.

1998. The increase in assessed value was largely due to Seaboard's investment in the town and its indirect effects, such as a housing shortage. The price of existing homes in Texas County rose due to the pressure on the market when 2,000 new employees began to work at Seaboard. Existing housing was snapped up by middle management, who paid higher prices. Laborers had no housing to invest in because of their low wages and transience. Some workers live nearly 40 miles away in Liberal, Kansas, requiring access to bus transport, carpooling or a personal automobile, all of which increase household costs. City officials have noted that in the five years before Seaboard's arrival, two new homes were built in Guymon. In 1994 and 1995, 60 new homes were built.[150]

The cost of buying a home actually decreased in the other farming-dependent counties, which illustrates the problem that such counties face in decreasing population. Housing, even in these counties, is often in short supply, but there is hesitation to build because of the rapid depreciation of housing stock due to lack of demand (see Figure 16).[151]

In the other farming-dependent counties, housing costs decreased 6.4 percent, from $31,162 in 1990 to $29,618. In Texas County, the cost of a house on the market increased 28 percent from $46,673 in 1990 to $54,675 in 1998. Housing costs increased much more rapidly in Texas County than they did in other counties. While this indicates that property values are going up, it also means it is more difficult to afford housing for those with incomes under $25,000 per year.[152]

Availability of Housing

Flora et. al reported that the number of available rental units, as listed in newspaper want ads, decreased in both sets of counties. The decline was 47 percent in Texas County and 36 percent in the comparison counties.

Implications of the decline are much graver in Texas County. The increased population growth is not matched by increased availability of affordable housing. That suggests important social capital issues of crowding and equity concerns that may have repercussions on financial and human capital in the future.

Poverty

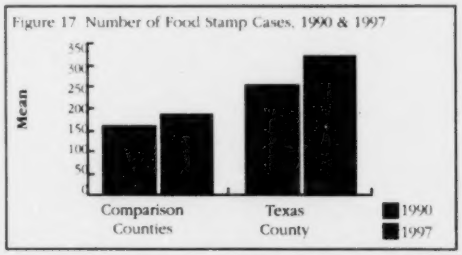
In looking at indicators of shifts in levels of poverty between 1990 and 1997, the number of food stamp cases was initially higher in Texas County, which had 633 cases compared to 407 in the other counties. It is important to note that the food stamps per person was lower in Texas County because of its higher population. The number of food stamp recipients increased 14 percent in the other farming-dependent counties and 17 percent in Texas County (see Figure 17).[153] There was an increase in the number of poor people seeking the minimal public assistance available, suggesting numbers of people with low income are increasing in all farming-dependent counties in Oklahoma.

Another indicator of poverty is the number of medically uninsured treated at local hospitals. The figures in this study are between 1988 and 1996 (see Figure 18).[154] Texas County had substantially fewer medically uninsured than the other farming-dependent counties in 1988, despite its larger population size.

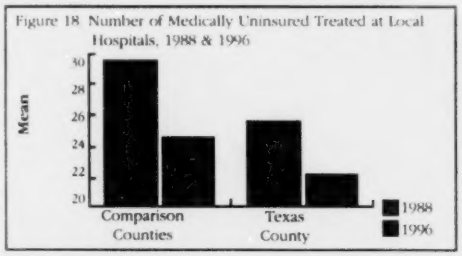
The number fell 13.6 percent in Texas County and 16.6 percent in the other farming-dependent counties. It is important to note that the rate of decline was not significantly different between the two sets of counties, despite the increase in manufacturing employment, which should include health benefits, in Texas County compared to the others. There is also a free medical clinic in Texas County that faces increasing pressure to meet the needs of the uninsured so they will not have to go to the hospitals.

Summary

The economic impact of recruiting integrated pork production to Texas County has been mixed and not as positive as expected. Jobs, tax base and retail sales did increase, but other measures of economic vitality did not. Per capita personal income decreased between 1993 and 1996 at a rate faster than in other farming-dependent counties. Employment increased dramatically between mid-March 1990 and 1996 for both Texas County and other farming-dependent counties. Wages, however, are not higher in Texas County compared to the average of other farming-dependent counties. And the high per capita income, which is nearly twice the average wage, comes from other income such as proprietor income, interest income, and income from investments of other residents of Texas County.



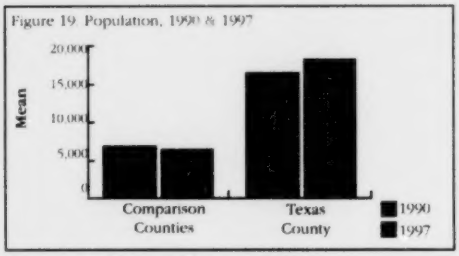
Source: Oklahoma Dept. of Human Services, 1997.



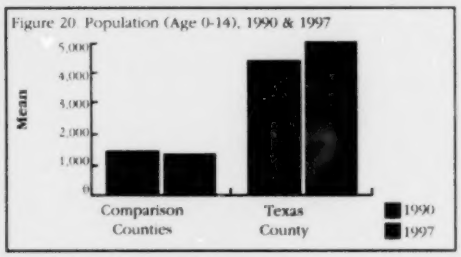
Source: College of Osteopathic Medicine.

Net taxes, as well as net valuation, have gone up more rapidly in Texas County than in the other farming-dependent counties. Most of those taxes go, however, to repay the bonds to support Seaboard or are paid by the state due to the *ad valorem* exemption granted to the new industry recruited.

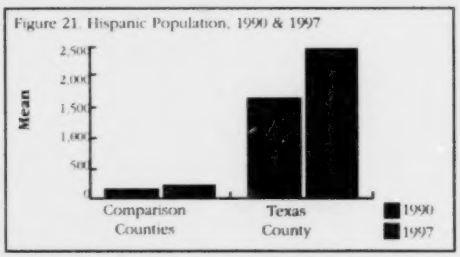
The number of business establishments has increased in Texas County, although no faster



Source: U.S. Dept. of Census, 1997.



Source: U.S. Dept. of Census, 1997.



Source: U.S. Dept. of Census, 1997.

than other farming-dependent counties. The number of registered sales tax accounts (the subset of the business establishments engaged in retail trade) increased, while it decreased in other farming-dependent counties. This suggests that Texas County, due to its initial higher number of retail establishments and perhaps due to the growth in number of workers as a result of Seaboard, has been able to increase the amount of retail trade.

The increase in the workforce contributed to greater consumer borrowing and spending, but that spending did not generate growth in commercial and industrial firms. Poverty decreased no more rapidly than in other farming-dependent counties, despite the substantial increase in the number of jobs.

Impacts on Human Capital

What happened to people in Texas County? The first important people-related outcome is human capital.

Population Size

One indicator of human capital is population size. This was the major human capital variable that motivated industrial recruitment in Guymon. Population increased by around 10 percent in Texas County from 16,419 in 1990 to an estimated 18,081 by 1997. In contrast, mean population size declined 6 percent in comparison counties with a mean population in 1990 of 6,647 reduced to 6,307 by 1997. The goal of population stabilization appears to be met--and exceeded--by the recruitment of Seaboard Corporation (see Figure 19).[155]

The difference in population change is even more dramatic looking at the young population, age 0-14 (see Figure 20).[156] While Texas County population of children 0-14 increased 15 percent, that same age population declined 7 percent in the other counties. In Texas County, the population 0-14 went from 4,347 to 4,980, whereas in the other farming-dependent counties it declined from a mean of 1,489 to 1,397. While this population does not contribute directly to the economy, they are a critical part of a dynamic community.

Population Diversity

Another aspect of human capital is its diversity. The population increase in Texas County is due almost entirely to the increase in Hispanic population. That population increased 49 percent in Texas County, from 1,634 to 2,431, compared to an increase of 21 per-

cent in the other farming-dependent counties, from a mean Hispanic population of 187 to 237. Hispanics now make up 13 percent of the population of Texas County (see Figure 21).[157]

While the greatest change in the Hispanic population came in the working age population, the school age population increased nearly as rapidly in Texas County at a rate of 46 percent, up nearly 500 children. Hispanic population 0-14 also increased by 21 percent in the comparison counties, from an average of 129 in 1990 to 161 in 1997.

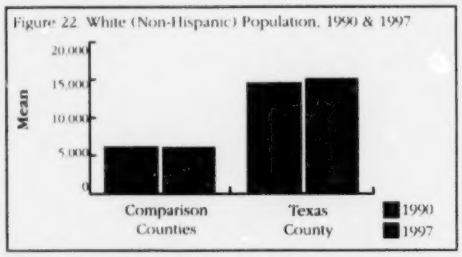
White non-Hispanic population increased 5 percent from 14,525 to 15,255 in Texas County. White non-Hispanic population remained stable in the comparison counties, from a mean of 6,160 to 6,159 (see Figure 22).[158]

Education

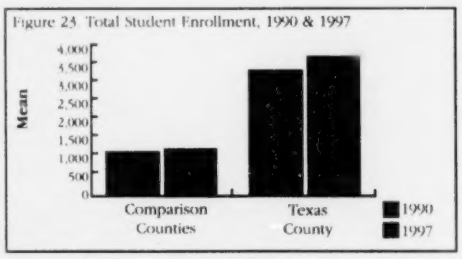
Primary school education is a major way in which we invest in human capital. Thus, school attendance and school expenditures were examined.

Total student enrollment has increased nearly 12 percent in Texas County (see Figure 23), a sufficiently significant increase to prompt construction of a new elementary school in Guymon.[159] More importantly, there has been a 125 percent increase since 1990 in the number of limited English or bilingual students; the Hispanic share of the student population rose from 13.7 percent in 1990 to 27.9 percent by 1997[160] (see Figure 24). White non-Hispanic student enrollment is down, but the rate of decline is not statistically different than the rate of decline in other farming-dependent counties.[161]

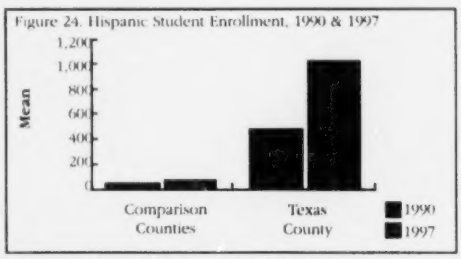
The initial student/teacher ratio was worse in Texas County in 1990, 13.6 compared to a 9.5 mean for the other farming-dependent counties; the number of students per teacher increased in both--to 15.1 in Texas County and a mean of 13.2 in other farming-dependent counties. This figure is noteworthy due to the large increases in Hispanic school enrollment. Fewer classroom teachers are dealing with a larger and more diverse student body in Texas County. These students often require instruction in English as a second language in order to meet their full potential as students. The student/teacher ratio may indicate some problems to come.



Source: U.S. Dept. of Census, 1997.

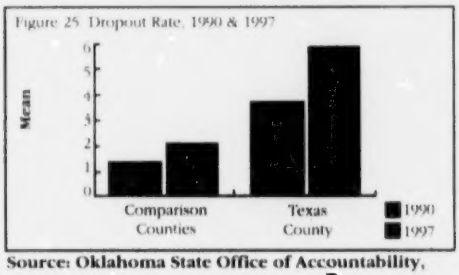


Source: Oklahoma Dept. of Education, 1991 & 1998.

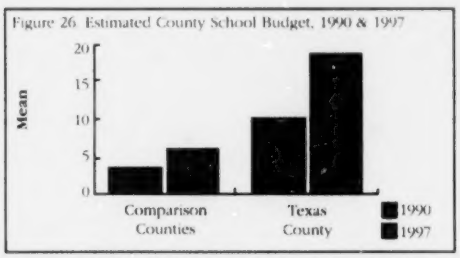


Source: Oklahoma Dept. of Education, 1991 & 1998.

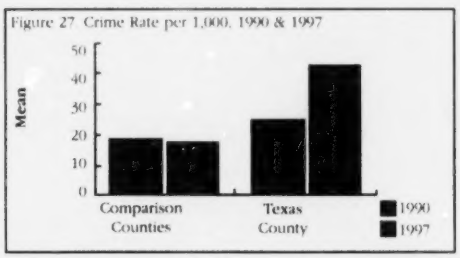
Texas County in 1991 had more than twice the dropout rate, grade school through prep school, as the other farming-dependent coun-



Source: Oklahoma State Office of Accountability, 1992 & 1998.



Source: Oklahoma State Office of Accountability, 1992 & 1998.



Source: Oklahoma State Bureau of Investigation 1992.

ties: 3.8 percent compared to 1.4 percent in the other counties. That dropout rate increased 55 percent in Texas County to 5.9 percent of total enrollment, compared to an increase of 64 percent to 2.2 percent in the other farming-dependent counties. However, part of that increase is due to counting students over 18 who did not graduate as part of the 1994 dropout rate. Increase in dropout rate, coupled with the higher student/teacher ratio, may indicate future problems related to human capital in Texas County (see Figure 25).[162]

County educational budget expenditures went up in both counties. The school budget in Texas County in 1990 was $10.2 million and increased 81 percent to $18.6 million between 1990 and 1997. In the other farming-dependent counties, the educational budget increased 35.4 percent from $4 million in 1990 to $6.4 million in 1997 (see Figure 26).[163]

Summary

Human capital in terms of numbers and diversity increased in Texas County at a rate statistically greater than the rate of change in the other farming-dependent counties. However, the indicators of investment in human capital, including an increase in dropout rate and an increase in student/teacher ratio, have not kept at the same pace, although the county educational budget in all farming-dependent counties has increased dramatically.

Let us now turn to indicators of social capital that can help us judge the degree to which there has been an increase in relationships and communication, and an improvement in community initiative, responsibility and adaptability.

Impacts on Social Capital

The recruitment of Seaboard Corporation by Guymon imposed certain expenses in terms of sales tax, property tax, quality of life issues and environmental capital in the rest of the county. The rift between town and country dwellers is greater in 1998 than in 1990, according to informal discussions with rural residents.

More objective measures of social capital include levels of individual security related to crime and the degree of acrimony within the community. These are indicators of degree of mutual trust, reciprocity and shared norms and identity--essential aspects of social capital.

Crime

One of the most noteworthy and frightening aspects of decline in social capital in Texas County is the huge increase in crime between 1990 and 1997. Reported crimes increased 74 percent in Texas County compared to a decline of 12.5 percent in the other farming-dependent counties. This is particularly noteworthy because Texas County began with a higher crime rate. While that increase might be attributed to increase in population, the crime rate per 1,000 population also increased in Texas County, while it declined in the other counties (see Figure 27).[164]

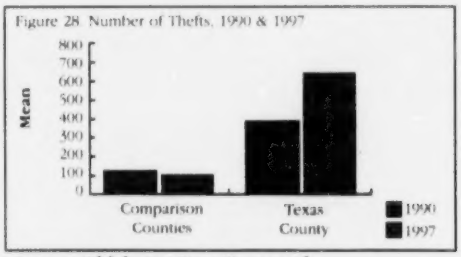
Theft related crimes increased 64 percent in Texas County compared to a decline of 11 percent in the other farming-dependent counties (see Figure 28).[165] These crimes include breaking and entering, larceny and motor vehicle theft.

Perhaps most dramatic is the change in the number of violent crimes reported. Those increased 378 percent in Texas County, whereas they declined 29 percent in the other farming-dependent counties. Texas County started out with a lower violent crime rate than did the other counties, but now their crime rate is nearly 4 and a half times greater than that of the other farming-dependent counties. Clearly, this negatively impacts perceived community security (see Figure 29).[166]

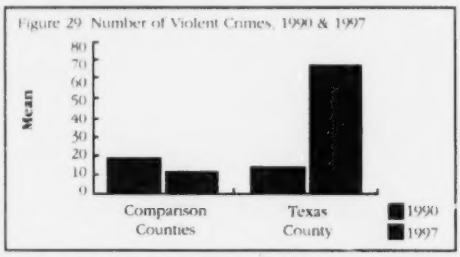
These crimes not only impact private citizens and the police department, but they also engender a number of "externalities" or social costs to the community that are economic. This is a result of the increased lack of trust and communication and a failure of traditional mechanisms of social control.

There is impact on the court system as well. The number of criminal court cases has increased 165 percent in Texas County between 1990 and 1997, compared to an increase of 67 percent in the other farming-dependent counties. This increase generates considerable court costs paid by state and local governments (see Figure 30).[167]

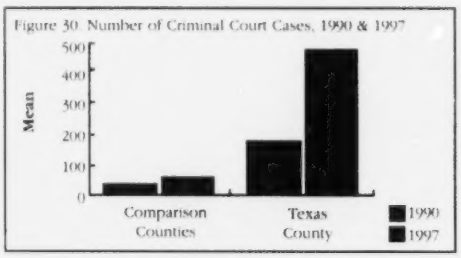
Civil Cases



Source: Oklahoma State Bureau of Investigation 1997.



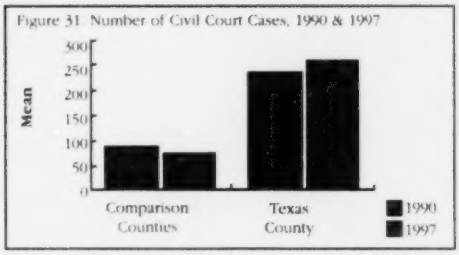
Source: Oklahoma State Bureau of Investigation 1997.



Source: Oklahoma District Courts, 1990 & 1997.

One last measure of social capital is the change in the number of civil court cases. Civil court cases involve disagreements among citizens regarding such issues as property conflicts and personal injury. These are not criminal acts, but disputes that are eligible for resolution through the formal legal system. Whereas in other farming-dependent counties the number of civil cases declined

11 percent, they increased 6.7 percent in Texas County. It is important to note that Texas County had a higher number of civil court cases in 1990 than the other counties combined.



Source: Oklahoma District Courts, 1990 & 1997.

While the difference in rate of change in number of civil cases is not statistically significant, the increase in Texas County suggests movement away from neighboring to litigation--another case where decline in social capital has an impact on public financial capital through the court system (see Figure 31).[168]

Summary

Social capital has decreased in Texas County since 1990. While the impact of the decline of social capital on financial capital isn't great, the implications for human capital and quality of life are enormous. Increasing crime and increased litigation among Texas County residents are critical to consider when choosing among alternative strategies for community economic development.

Impacts on Environmental Capital

Environmental capital includes air, water, soil, plants, animals and scenery. These assets are not included in corporate or government balance sheets. Their absence does not mean that the environment does not have value, only that the value has been taken for granted. In the Panhandle of Oklahoma the environmental capital can be easily overlooked. Its treeless plains are open and wide as the horizon. There is little surface water and only 15 inches of annual rain. Its short grass plain is tufted and has known the devastation of the Dust Bowl. The opportunities for successful agricultural refinement seem limited at first glance. But this wide open space is a premier cattle raising and dryland farming area, as well as a cornucopia of irrigated corn thanks to the underlying Ogallala aquifer. In 1990, prior to Seaboard's arrival, Texas County was the number one producer in Oklahoma of corn, sorghum and cattle.[169] Irrigated corn and other crops are major water users and hog confinement and pork processing both are water-intensive with serious implications for aquifer depletion.

Information is limited regarding the impact of hogs in the Panhandle. As large-scale hog industrial hog production is a new phenomenon in Oklahoma, little historical data is available to determine impacts. Thus, the research must depend on the few indicators available over time and extrapolate research in other areas of the country that can inform us about possible impacts on environmental capital. Environmental legislation related to agriculture has been lax in part because agriculture has historically been classified as a non-point source of pollution. Further, belief in the infinite availability of ground water pushed yields on irrigated acres of corn.[170] The addition of hog confinement in the Panhandle raises environmental concerns.

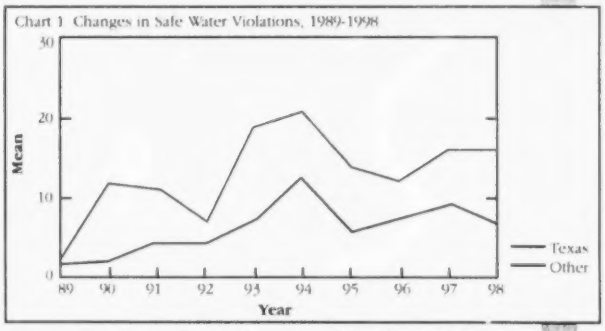
Many farmers in Texas County purchased land from Seaboard Corporation with effluent application easements attached. Farmers are limited in controlling the manure slurry distribution, as the company producing the effluent "shall have sole discretion in determining the timing of and amount of applications of effluent to owner's land...."[171]

Though the easement allows for some specific crop uptake requirements, it also allows itself an out. "Companies shall have the right to deviate from any restrictions set forth herein if an event deemed by Companies, in Companies' sole discretion, to be an emergency situation arises, including, but not limited to...."[172]

This allows the companies (industrial hog producer) to distribute effluent as necessary on the farmer's land according to the company's requirements and not the nutrient needs of the land or the crop. This is a particular problem, as the proportion of nitrogen to phosphorous in hog manure--even with the new nutrient requirements--is different than the proportion in which corn and sorghum uptake nutrients.[173] Corn and sorghum uptake more nitrogen than phosphorous. Thus, if manure is applied to meet nitrogen requirements for corn or sorghum, the phosphorous exceeds the amount these plants can uptake.[174] Heavy metals, including copper and zinc, can also be a problem in hog manure.[175]

Water Quality

The increased use of confined animal feeding operations for cattle, poultry and hogs has raised concerns regarding the possibility of groundwater and soil pollution.[176] In Texas County, hog confinement arrived on an already stressed landscape with more than 400,000 feedlot cattle[177] and as of 1992, more than 50,000 acres of irrigated corn.[178] Irrigated corn, in the course of consuming enormous amounts of water, produces nutrient runoff particularly high in phosphorous because of the use of animal manure as a source of nitrogen. Corn is now produced using hog manure as a source of nutrients. Sunflowers, milo and native grass also have effluent spread on them. There is not a procedure in Oklahoma to monitor where and how much of nutrients are spread on the various crops and grasses grown in the Panhandle. Thus, water use and nutrient imbalance increase together.



Source: EPA, Center for Environmental Statistics, 1998.

While pollution from manufacturing and sewage treatment plants has been dramatically reduced [point pollution], runoff from city streets, agricultural activities (including animal feeding operations), and other sources continue to degrade the environment and put drinking water at risk.[179]

Hogs have a similar digestive track to humans, eating concentrated food rather than the roughage of cattle feed, so their waste is more concentrated and potent than cattle manure. Full-grown hogs, grown under confinement conditions, produce 15 pounds of waste per day, about three times the amount a person of equal weight would excrete.[180]

There are about 1.1 million hogs in Texas County at any one time. About 869,000 will be finish pigs [nearing market weight of 250 pounds].[181] Not all will be at the 250 pound market weight, so using an average of 200 pounds per pig there are 173.8 million pounds of pigs producing conservatively 10 pounds of waste per day giving Texas County 1.738 billion pounds of waste daily. When distributed throughout the state, as the 1.6 million hogs were in 1910, the manure was

also distributed. But today 90 percent of the hogs are in the Panhandle, primarily in Texas County. Since hog manure is disposed of as highly liquid slurry in confinement operations, the costs to transport it are prohibitive. Therefore, it must be used in the local area. Thus more land must be put into irrigated corn, a higher user of nitrogen--a key component in manure.

The effluent goes from the hog house to be stored. In Texas County, lagoons are constructed to hold the waste. The lagoons of Texas County are the open-air storage pits lined with clay or geomembrane plastic liners. Though there are many systems to handle hog waste, lagoons are the cheapest and least efficient. The current LMFO regulations allow lagoons to seep at roughly one-quarter inch per day. The Oklahoma Department of Environmental Quality translates that into a total of more than 500 gallons per acre per day.

...using an average of 200 pounds per pig there are 173.8 million pounds of pigs producing conservatively 10 pounds of waste per day giving Texas County 1.738 billion pounds of waste daily.

There is no fail-safe method of waste storage and treatment. In other states, mismanagement of lagoons has created animal waste overflows and spills. Though clay soil does not present a large danger to groundwater contamination, the mixture of sandy and clay soils in the areas near the Beaver River allow some areas of Texas County to be in danger of pollution. The rapid construction of thousands of hog facilities and lagoons in the Panhandle has created a stress on the Oklahoma Department of Agriculture who regulates the permitting process.

In Texas County, Guymon sits on the edge of the Lower and Upper Beaver River watersheds. The EPA does not publish data on environmental conditions in the Lower Beaver River watershed, but there are data on the Upper Beaver River watershed. The Upper Beaver River watershed has serious water quality problems, ranking 5, with 6 being the worst and 1 being the best. The watershed has aquatic conditions well below state water quality goals and has serious problems exposed by other indicators.[182]

According to the EPA, the watershed has low vulnerability to stressors. Actions to prevent declines in aquatic conditions in these watersheds are appropriate, but a lower priority than watersheds with a higher vulnerability.[183] However, the vulnerability may shift if there are discharge loads above permitted discharge limits. The vulnerability is likely to increase because of increased nitrogen run-off potential.

There have been advisories recommending no fish consumption in the Upper Beaver, and only 20 percent of the water was deemed suitable for swimming. The EPA class level of impact for potential pesticide run-off, potential nitrogen run-off, and sediment delivery is moderate. In 1995-1996, the EPA reported only moderate volumes of impounded water. However, increase in the number of lagoons increases the potential hydrologic modification due to impounded water.

Congress enacted the Safe Drinking Water Act in 1974 to ensure that every water supplier provides drinking water that meets minimum health-based safety standards, which are set by the EPA. The EPA has set health-based limits for more than 80 contaminants that may be found in drinking water. These contaminants include metals (such as lead), fertilizers (such as nitrates/nitrites), pesticides (such as atrazine), and microorganisms (such as coliforms).

The study found violations of the EPA stan-

dards for Community Water Systems, systems providing drinking water to more than 25 people year-round, located in the county between 1989 and 1998 (the 1998 data are incomplete, ending with those reported in late November) (see Chart 1).[184] Community Water Systems often provide drinking water to consumers in multiple counties. Therefore, the population served by these water systems does not necessarily correspond with the population residing in this county. However, the information does correspond with the location of the water system.

The maximum number of violations--which may correspond to more rigorous inspection during the mid 1990s--occurred in 1994, as large-scale hog production was moving into Oklahoma. From 1990 on, Texas County has more violations than other farming-dependent counties (except Blaine, which also has a large number of water systems and consistent high levels of violations). More important than the relative numbers is the trend over time. Since the institutionalization of integrated corporate hog production and processing in Texas County, the number of violations has risen, while the number has remained relatively constant in the other agricultural counties. This could be related to population increase--either humans or hogs whose fecal matter seeps into drinking water supplies.

While bogs are not the root cause of water depletion in the Panhandle, the large hog operations increase pressure on an already stressed ecosystem.

At the turn of the century, the Beaver River was torrential, three miles wide and capable of wiping out bridges.[185] In the 1990s, the river does not flow more than 90 percent of the year.[186] The total annual volume of flow at most measuring stations in the Beaver-North Canadian River basin has decreased dramatically since 1978, though precipitation has not altered. The base flow of the Beaver River has dropped to 10 percent of pre-1971 levels.[187] The river is depleted by irrigation. Some areas of the river do not run, but where there are no irrigation wells the river still runs.

Texas County uptakes almost all of its water from the High Plains (Ogallala) Aquifer flowing some 200 feet beneath the Panhandle.[188] In 1990, approximately 363 million gallons per day of ground water were pumped from the High Plains Aquifer.[189] Throughout the High Plains, the water table has dropped 9.9 feet from predevelopment times to 1980, and then dropped another 3.05 feet from 1980 through 1995.[190] Irrigation methods became increasingly efficient with fully automatic center-pivot drop sprinklers. But as efficiency rose, crop acreage rose as well. There were approximately 54,400 acres in irrigated corn in 1991. There were approximately 90,000 acres in irrigated corn in 1998.[191]

Texas County has more than 380,000 head of feedlot cattle, a ready market for the corn.[191b] While it is a particularly thirsty crop unable to be grown without irrigation in Texas County, corn yields up to 200 bushels per acre with 22 inches of irrigated water. With an estimated 90,000 acres of corn in 1998 and each acre using approximately 2 acre feet per year (an acre foot equals 325,851 gallons), Texas County uses approximately 58,653,180,000 gallons of irrigated water a year on corn alone. Corn is fed to both cattle and hogs--and uses some of the nutrients in the hog manure. Livestock water usage is three percent directly, but livestock feed requires all the irrigated fields can produce, accounting for 92 percent of water withdrawal from the High Plains Aquifer in Texas County.[192]

While hogs are not the root cause of water depletion in the Panhandle, the large hog operations increase pressure on an already stressed ecosystem. The growth of intensive hog operations contributed to a 66 percent increase in livestock water use between 1990 and 1995.[193]

Soil Quality

Some of the soils in Texas County are loamy soils high in clay content and with intermittent calcium deposits known locally as caliche. Because of the lack of vegetation, the possibility for soil erosion is high and the organic content of the soil is low.[194] Recycling of manure nutrients in the soil is a possible remedy, as it would increase the organic matter, nutrient level and water holding capability, and reduce soil compaction.[195]

However, excessive manure application and poor management practices can also negatively impact soil and water quality.[196] This has led to problems with nitrate pollution, phosphorus buildup and soil salinity. Applying at maximum disposal rates is not the best crop rate. Due to strong prevailing winds, every acre in Texas County is highly erodible land. Phosphorous is tied to the soil and can migrate through the wind.

Nitrogen excretion by hogs may be contributing to nitrogen buildup in soil and water. Though hogs are more efficient at converting feed than cattle, they still only convert 35 to 45 percent of nitrogen. Therefore manure excreted by hogs is nitrogen-rich, prompting studies to lessen nitrogen excretion rates.[197] The hogs in Texas County are excreting nitrogen-rich manure that has the potential of polluting the groundwater through nitrate leaching. Intervening layers of sediment act as a filter transforming nitrates into nitrogen gas. A surplus of nitrate in the soil leaches into groundwater, produces runoff into surface water, or volatilizes into ammonia returning to the atmosphere.[198]

Though much of Texas County consists of clay type soils, some areas do have sandy soils or the excessively drained soils as those along the caliche breaks of the Beaver River.[199] These areas near the river are also closer to the ground water table than other Texas County areas, and need to be protected and watched carefully for nitrate leaching into the groundwater.

USGS measures of nitrate pollution have not yet indicated problems in the Panhandle, but the latest measurement was in 1994 before the greatest influx of hog operations. This report indicated nitrate buildup just to the east of the Panhandle along the Cimarron and Canadian Rivers and in the Rush Springs aquifer in central Oklahoma, both major agricultural areas.[200] A study of soil characteristics in the South Platte River basin of Colorado indicated the potential for excess nitrate and phosphorus buildup if current levels of application remained constant.[201]

Phosphorus has not been as prevalent in the west as in more humid areas. Excess phosphorus does not leave the soil but accumulates creating the potential for pollution through erosion, runoff and eutrophication—where the oxygen supply is depleted in water and destroys aquatic life—the most widespread water quality problem in America.[202] Phosphorus buildup settles rather than evaporates as nitrogen does and therefore can create pollution problems in the arid western areas such as Texas County. Phosphorus from CAFOs tends to accumulate faster than nitrogen and can pollute through soil movement in erosion.[203] An accumulation of phosphorus in surface waters creates eutrophication.

Historically heavy irrigation has negatively affected soil quality by increasing salinity.

Damaged soil is further impacted by the introduction of excess fertilizer--including spread manure--that can accumulate additional mixtures of toxic metals, bacteria, viruses and other parasites.[204]

The USGS is currently conducting a survey on groundwater level and water quality changes in the region. Because of insufficient funds, they are unable to do as thorough of an examination as this problem requires. Although scientists and technicians can now identify nitrate sources, detecting human, animal and synthetic sources, the cost of these tests is prohibitive with current funding.[205]

Air Quality and Odor

Though cattle feed lots have been part of Panhandle life for more than a generation and certainly have an odor all their own, the odor from hogs has four times the intensity.[206] The large number of hogs in Texas County makes it especially susceptible to air quality problems. A mixture of gases in animal waste creates these odors.

The sources of odors for hog operations are the barns, manure storage units, effluent application and carcass disposal.[207] Barns require proper ventilation for both human and animal presence and good management policies to keep them clean and therefore cut odor created by dust, dirt and spills. Dust is a major contributor of odor, as volatile fatty acids carrying the stench attach to the particles and then coat everything touched, often binding chemically. Management of lagoons is critical to the control of odor. The biologic processes in the first year, the flushing and irrigating process disturbing deep anaerobic water, can release its foul smell, and weather conditions such as wind and temperature changes can create conditions which make the lagoon turn over. However, spraying hog manure onto fields causes more complaints from the public about odor.[208] Though more effective ways to spread effluent, such as injecting it directly into the soil, can be accomplished, the cost is higher. Further, improper injection can endanger ground water.

The four main gases produced by the large-scale hog industry are hydrogen sulfide, carbon dioxide, ammonia and methane. Elevated levels of these gases are toxic to many higher organisms and direct exposure to them can produce symptoms from irritation to death in humans and animals.[209] Though not all gases produce odor, hydrogen sulfide and ammonia emissions can not only be toxic but also produce odor.[210] But beyond these two gases the anaerobic manure decomposition process associated with industrial swine odor also gives rise to volatile compounds.

Massive hog operations impact air quality with odor and gaseous emissions. The effects of pronounced odor and gaseous emissions range from worker and neighbor health impairment to cumulative environmental pollution. Odor can also have adverse health affects for those who live or work in close proximity to hog barns or production facilities. The four major gases and dust can affect the lungs irritating mucus membranes. High levels of these gases are undetectable and can cause instant respiratory arrest and death, which has happened to several people in the Midwest.[211] The Occupational Safety and Health Administration limitations for hazardous materials may begin to apply exposure limits to agricultural operations, modeled on those limits that have been applied to protect other industrial workers.[212]

A community's value decreases with the presence of odor. Because responses to odor vary among individuals and because odor is detected by organic olfactory systems, some prefer to discuss odor as a "psychological"

phenomenon, immeasurable and therefore beyond the scope of policy. In the United States, where statutory remedies are few, citizens have been compelled to resort to common law nuisance suits in order to gain relief from pervasive odor impositions.[213] Even then, these suits are often countered by a "right-to-farm" defense, as contained in Oklahoma law making it more difficult to win "nuisance" lawsuits.

How Effective Are Existing Laws?

Concerns regarding water, soil and air pollution are highlighted in a hearing that continued into 1999. As Seaboard continues its expansion in the Panhandle it has spread outside of Texas County into neighboring Beaver County with its 6,000 people. Though the new regulations enacted in both 1997 and 1998 have considerably strengthened the environmental protection theoretically, implementation has lagged. The following is an example of how the permit process can function in Oklahoma.

In late August 1997, hog barn permits were filed en masse across the state to avoid the regulations [September 1997] imposed by HB 1522. Though the Seaboard Dorman application was originally filed in a timely manner it was amended several times after the August completion date, because the application was repeatedly found to be incomplete.

The Dorman site is a proposed 27,000-sow site located next to the 15,600-acre Department of Wildlife Conservation's Beaver River Wildlife Management Area. Seaboard was granted pre-site approval from the Oklahoma Department of Agriculture, and as there were seemingly no protests. They built more than half the hog barns at a cost of more than $9 million. However, a hearing request filed through proper channels did not come to light until after the construction began. A farmer and the Wildlife Department complained about site specific ravines and channels that would drain into a wildlife preserve and Beaver River waterbed. Oklahoma Department of Agriculture (ODA) Water Quality director Dan Parrish noted in his pre-site inspection that the potential for runoff down gullies to the Beaver River was great.[214]

According to testimony and evidence presented by the Oklahoma Attorney General's office representing the Oklahoma Wildlife Department and a private firm representing adjacent landowners, the application contained many errors. While there were many inconsistencies, the following is an example of some of the problems:[215]

- Maps submitted to the Department by the applicant were inaccurate.
- The Pollution Prevention Plan is mostly boiler plate language not tailored to the site.
- The land application site recommended for approval by Department personnel includes applying hog waste on an area where a stream is located.
- Playa lakes are located on the proposed land application site.

With so many errors in one application one wonders about the errors in unprotested licensed hog operations in Texas County and the rest of the state. Until recently, Oklahoma had one agricultural inspector for the Panhandle, responsible for not only hog barns but also the many cattle feed yards. There are now two inspectors for the Panhandle. A lack of enforcement of enacted laws may be what corporations are counting on to maintain their profit in hog producing states. The hearing is costing the farmer filing the complaint enormous amounts of money and time, expensive for the average person but part of the cost of business for the billion dollar company Texas County courted.

Environmental capital in Texas County is under threat. The waste from hogs poses danger to water quality, soil quality and air quality, with implication for human health and the long-term sustainability of the ecosystem. Several good laws are in place. But, as is clear from the Dorman site example, the administrative structure is not in place to ensure that these are followed. More personnel, with specialized training are needed to provide more monitoring.

Summary

Environmental concerns have intensified. There are increased problems with e-coli (human- and hog-generated) in drinking water. Soils are at risk of nutrient overload, air quality is impacted, and surface water put at risk. While laws are now in place, enforcement is difficult because of lack of personnel and adequate funding.

Policy coordination between states and localities is being negotiated. Counties and townships in some states have the authority to bring in industry which is deemed in conflict with state economic development interests (Minnesota) or to zone agriculture, even when that agriculture is industrial (Iowa, Missouri, and 16 counties in Indiana). Elsewhere, localities are allowed control over industry siting and regulation (Colorado, South Dakota, Kansas, Nebraska, Kentucky).[216]

Impact on the different capitals discussed are interrelated, as well as being distributed across each county unevenly. For Texas County, Seipal summarizes these effects by noting that "The affected population in the outlying areas receives mainly the negative impacts of Seaboard's operation--including water depletion, odor, and potential contamination from waste disposal--while the positive impacts, such as increased economic activity, are largely concentrated in Guymon."[217]

Summary of Capital Changes

The results are more mixed than originally anticipated when Guymon voted to recruit Seaboard Corporation (see Figure 32).[218] There are more jobs, but jobs also increased at a very rapid rate in the comparison counties. Some property values have increased significantly. Rural residents living near the hog operations have suffered loss of property value.[219] Part of property value increase is diluted because the funds generated must be used to pay back the bonds used by Seaboard Corporation to build their plant, feed mill and lagoons.

Housing values have increased as reflected in increased property value. Business activity increased. There are more business establishments in Texas County and more sales tax accounts. Sales taxes collected have increased substantially.[220]

Levels of poverty, as indicated by the percent change in the number of food stamp cases, increased. The financial indicators are good for some retail businesses in Texas County. They are not as good if you are part of the working poor or are unable to work, as the pressures on housing costs have increased greatly.

Human capital changes are also mixed (see Figure 33 at the end of this section). County population increased in Texas County in all age groups, while it decreased in other farming-dependent counties in all age groups. Most of that growth is due to the increase in Hispanic population, as the county has become more diverse.[221]

School enrollment increased, but so did the dropout rate in Texas County. Hispanic school enrollment is up in all Oklahoma farming-dependent counties, while the number of classroom teachers is down. The student/teacher ratio has increased in Texas County and the comparison counties, which

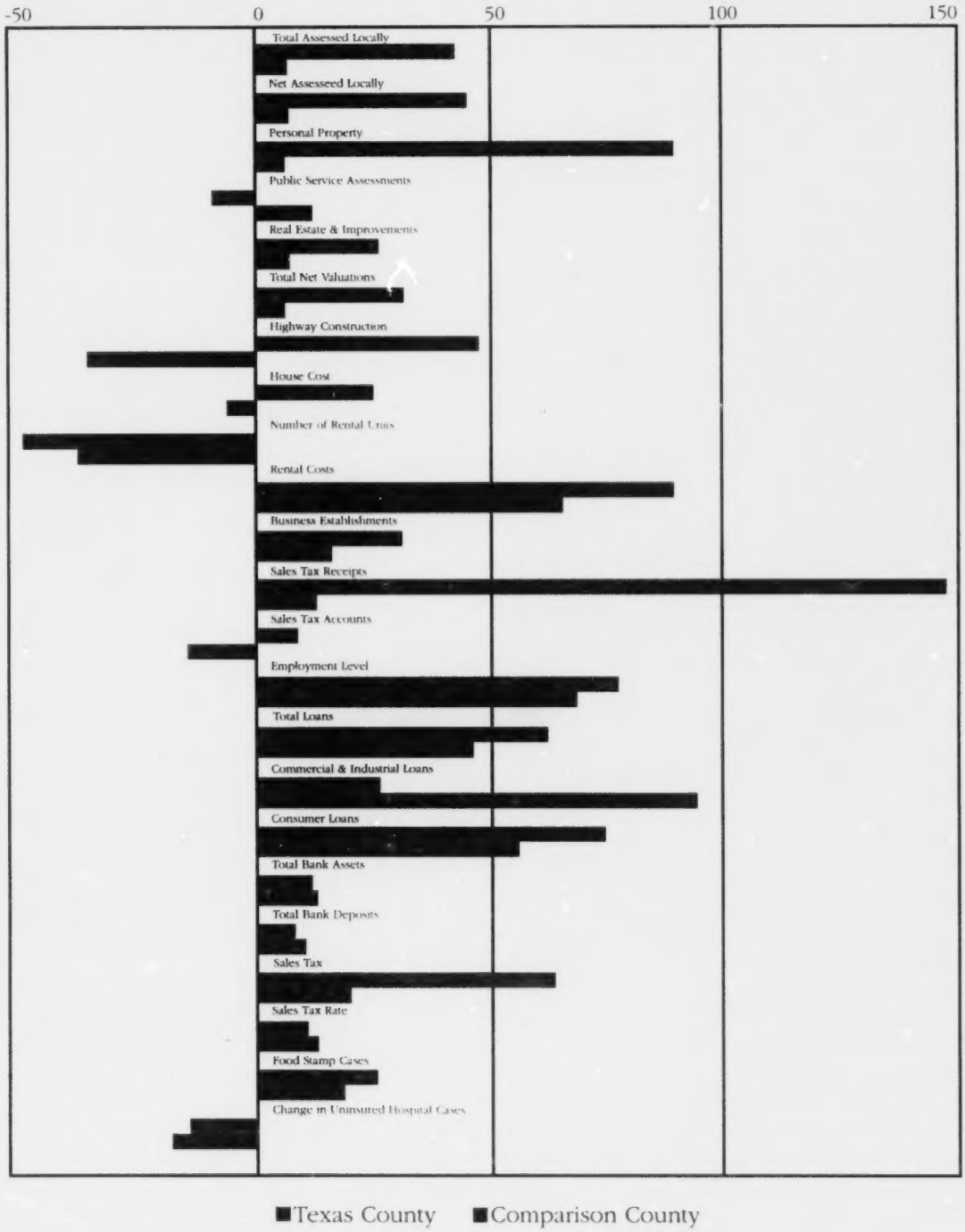
unfortunately means there are fewer teachers to deal with more and more diverse students. County educational budgets have increased dramatically between 1990 and 1997 in all the counties. Texas County has seen substantial increases in the number of crimes and in crime rate and thefts whereas all of these have decreased in the other farming-dependent counties. Most alarming is the huge increase in violent crimes, murder and rape in particular, in Texas County (See figure 34 at the end of this section).[222]

The environment shows some indications of decline. Safe drinking water violations have increased rapidly in Texas County. Irrigated acres of corn, necessary to use the hog manure, have increased rapidly in Texas County, depleting the water table more rapidly. Nutrients on the fields have therefore increased extremely rapidly as well. There is a danger of soil phosphorous buildup as well as the release of bacteria and nutrients in the water supply. Although the land is relatively flat, extreme events where there is very little water already running can release both those bacteria and nutrients in very high concentration levels.

The conclusion to date is this. In Texas County, there have been a few positive impacts of industrial recruitment of large-scale corporate hog operations. However, negative impacts--much less likely to be anticipated but much more highly felt by the average person in the county over the long term--have also occurred. It becomes increasingly important that those considering industrial recruitment as a model of development in farming-dependent counties look closely at the variety of alternatives available. The choice of an alternative as dramatic as integrated industrial animal production may preclude other alternatives in the future.

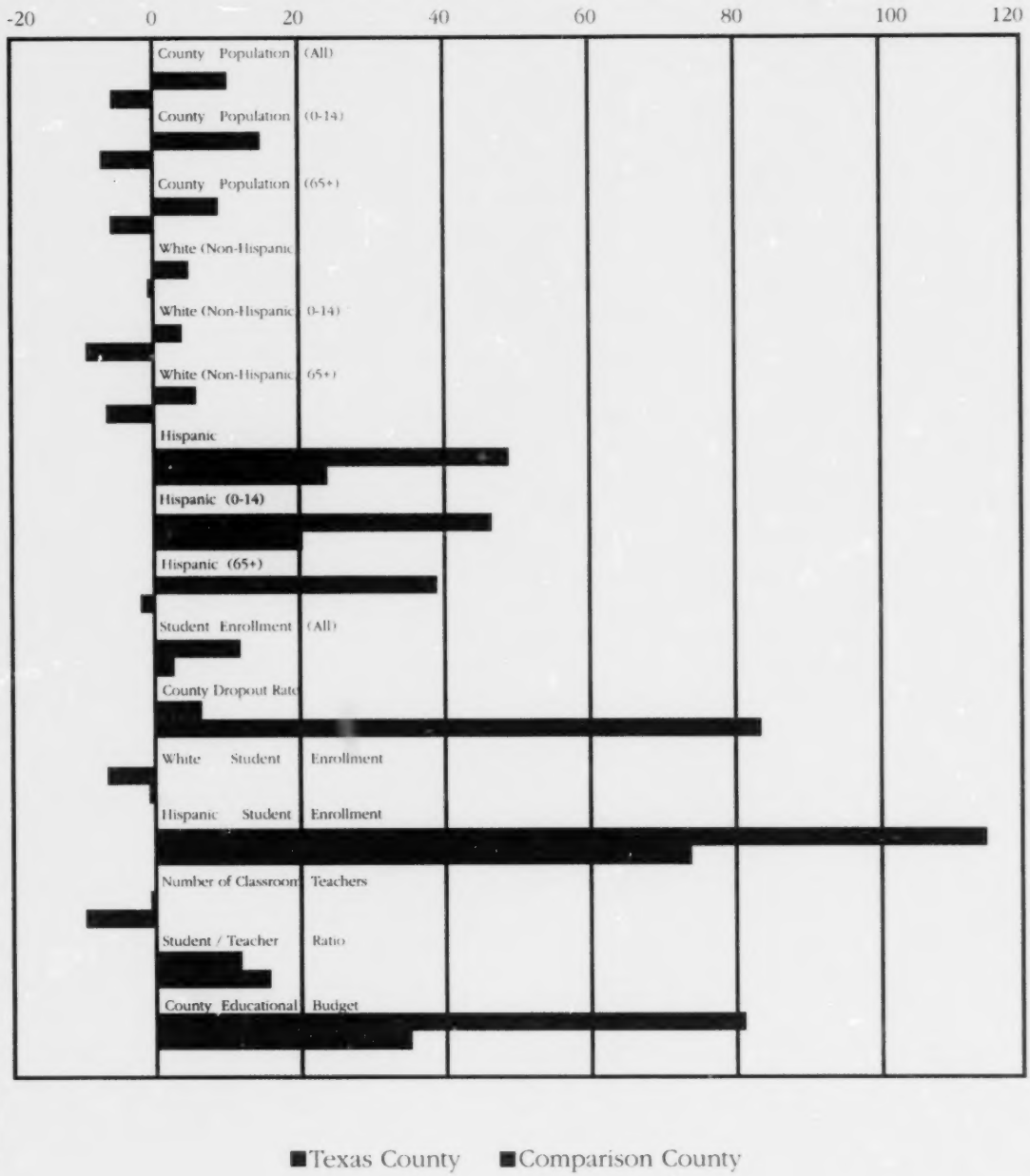
The next section presents some alternatives to industrial recruitment that have occurred in farming-dependent areas of the country. These models should not be copied elsewhere, but the principles involved in making them work can help communities realize that there is more than one way to deal with a perceived need for rural revitalization.

Figure 32. Percent Change Between 1990 & 1997: Financial Capital



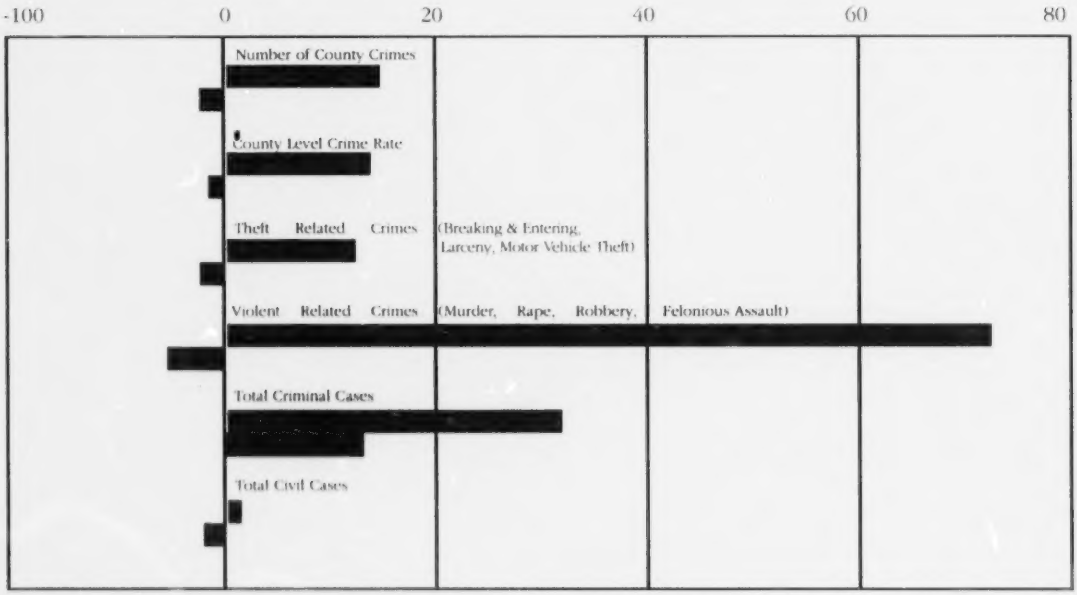
Source: Flora, C. North Central Regional Center for Rural Development, 1998.

Figure 33. Percent Change Between 1990 and 1997: Human Capital



Source: Flora, C. North Central Regional Center for Rural Development, 1998.

Figure 34. Percent Change Between 1990 and 1997: Social Capital



Source: Flora, C. North Central Regional Center for Rural Development, 1998.

Alternatives to Industrial Recruitment

Case I. Iowa Turkey Growers Cooperative and West Liberty Foods[223]

When Phillip Morris Corporation announced on April 26, 1996 the closure of the Louis Rich turkey processing plant in East Liberty, Iowa, the community faced a loss of jobs and farmers faced the loss of the market for their birds. The plant had processed half of Iowa's annual turkey production. Rumors of the impending closing served to bring the communities of turkey growers and West Liberty together to decide what to do.

Iowa had just passed a law allowing closed cooperatives. Previously, all of the growers were members of their local open cooperatives. Forty-five of the contract farmers decided to take the plunge. They explored a wide range of options, including forming a closed cooperative to work with an existing cooperative which would manage the plant. Following that they took stock of their assets—the capital available to them. The farmers in the group were all entrepreneurial with a wide variety of production and business expertise. The inputs they used were all from within the state, including corn and soybeans for feed, the woodchips for the turkey house floors, the fuel, and the workers in the plant. It made sense to keep local.

They formed the Iowa Turkey Growers Cooperative and founded West Liberty Foods. Each farmer had to put up dollars per delivery as an initial investment. Collectively they provided $2.5 million dollars and some of the growers bought their own facilities from Louis Rich. The growers only owned half of the turkeys. It took another $7 million to buy the turkeys from Louis Rich.

The plant is not just a "kill and chill" plant. Indeed, you can't buy a fresh or frozen whole turkey with the West Liberty Food brand on it. But you can buy a wide range of specialty products--and probably do, as they process turkeys, hogs, cattle and chickens for private labels as well as turkeys for their own label. Since private labels in the food industry are now gaining market share against name brands, they are well situated to be competitive. However, they realize that innovation is constantly needed to meet the variety of consumer demand.

Financing was not easy, but fortunately the community's involvement made a difference. Norwest Agricultural Credit loaned the co-op $8 million at market rate, backed up by a $7 million loan guarantee from USDA Rural Development. They were able to mobilize local, state and federal loans, loan guarantees, and grants totaling $14 million (including the Norwest loan) to help purchase the former Louis Rich turkey processing plant.

On January 1, 1997, the growers took over the plant. Unfortunately, 1997 was a bad year for the turkey industry nationwide. Overpro-

duction of turkeys and flat consumer demand combined to inflict heavy economic losses. The co-op seemed to hemorrhage money, requiring frequent trips to creditors. Five of the original investors left the cooperative. From those remaining, entire farm operations and savings accounts were committed to the project and the belief that it would work. Although the excellent management they hired made many costs cuts for long-term profitability, there was still a constant need for capital infusion.

By mid 1998, reduced turkey production, combined with product and process innovation, balanced supply and demand. An $866,000 loan from the Iowa Farm Bureau Federation was needed to meet the equity lending requirements of Norwest Agricultural Credit. Farmer-members seemed to spend as much time with people establishing lines of credit and new markets as they did on the farm with their birds.

Many individuals and state and local agencies took on the cause of helping them ride out the economic storm. There was much support for farmer-owned, value-added operations in Iowa, and none of the supporters was willing to let the state's first major effort fail. The commitment and vision of the farmer-members to add value to everything they sell and to market more than they produce helped keep everyone involved.

The cooperative can now ensure a profit to its turkey producer members and to the West Liberty Foods business, which is fully owned by the cooperative. They also seek to provide quality jobs to the local labor force. The average annual wage at the plant is $22,250, or $10.70 an hour. Their labor force has an average of six to seven years experience at the plant. The farmer-owners chose to keep a core group of 425 employees because of their skills. The labor force at the plant had increased from 425 to 540 as of December 1998.

Because of the specialized nature of the product, a quality labor force is critical. The farmer-owners work with the chief operating officer to be sure that the work force has adequate training and appropriate benefits. The farmer/owners realize the inefficiencies of labor turnover, and work to make it a good place to work. Although they couldn't raise wages when times were tough, they have raised them substantially now that the business is doing well. Even in a very low unemployment state, the coop is receiving applications as they expand the plant. They are known as a good place to work--in part because they do processing as well as basic slaughter operations.

Much of public money was mobilized for this project, from the cities of West Liberty (population 2,200) and Muscatine (the county seat), Muscatine County, the state of Iowa, particularly the Iowa Department of Economic Development, and the federal government. Private money from the farmer-members brought the public funds, which in turn leveraged private funds.

At every stage, they took advantage of every farmer members' expertise and put the word out when they needed help. The growers put their money up front. They started to grow turkeys for the project before everything was in place. They all knew what they wanted to do and how they wanted to do it, so they were able to keep up hope through the toughest time the turkey industry had ever experienced, which coincided with their first 17 months of operation.

Sticking with it paid off. They have all their meat sold for 1999 and are bringing in meat to fill orders. They focus on meat safety, quality and product development. They are proud that they employ people who care about the quality of the meat going out of the plant. They appreciate the workers in the plant as the people who guarantee taste,

safety and quality. Their owner-members visit local grocery chains to demonstrate their products.

Case II. Edible Beans[224]

The edible bean-processing cooperative was established in 1994 as a closed cooperative. It sells seeds for beans and also processes dry edible beans for food wholesalers. This firm was originally a local private corporation. In an industry where mergers are becoming common, the owners wanted to expand into value-added markets to remain competitive.

The company had a sizable group of loyal growers who were necessary to start a cooperative venture. Farmers representing different geographic areas were asked to serve on a steering committee. Grower meetings were held in towns where the cooperative wanted to attract members. Announcements of the meetings were placed in local newspapers, casting a wide net for potential members.

The original owners believed that their business would be in a much better position to survive long-term if a cooperative was formed. "We have put a lot of hard work into this business. We don't want it to just shut down when we retire." They also voiced a commitment to providing an opportunity for farmers (particularly smaller ones) to remain in operation. Having been farmers themselves, they believed "if more cooperatives were formed, small farmers could still operate." They chose the cooperative form because profits stay among the growers, rather than a corporate entity. They also liked the fact that a cooperative provides farmers "ownership of the plant, a say in things, and ownership of their own future."

Members must live in one of three states, purchase a minimum of 1,000 shares, and commit to delivering at least 100 pounds of beans per share purchased. Membership is limited so that supply and demand are in balance. The co-op began operation with the commitment of 163 farmers, and there has been no change in that number to this date.

As a private company the firm employed 25 people. Currently the cooperative employs 35. The management makes routine and operational decisions, while the board of directors must approve any new additions or capital expenditures. Members have a voice mostly through their regional representatives, although some choose to speak directly to management.

The cooperative has established a process for long-term planning. They set aside two days each year for a strategic planning retreat where the directors and management revise their mission and business statement, and establish yearly goals. The cooperative has experienced rapid financial success. It was profitable during the first year of operation. Debt accumulation during start-up was low. The intake of beans has increased, and new products have been developed.

"Bean Day" is an annual open house for members and their spouses. Informational sessions are held throughout the day, and a dinner culminates the event. They have experimented with a contest to recognize member achievement. They hold a Christmas party for employees at which they recognize longevity of service. The co-op is located in a tiny town of approximately 30 residents.

This cooperative, which stresses both profitability and community building, has annual revenue in excess of $23 million. It also provides a diversified and growing market for its 163 members from three adjoining states. In this case, the private sector provided the necessary capital, but good linkages among the members and commitment to the local community provided the glue required for success.

Case III: Dairy[225]

Dairying is the largest single agricultural enterprise for Becker and Otter Tail counties in Minnesota. With 30 percent of all farm receipts, dairying is the largest of any economic sector, accounting for 13 percent of the counties' total export base (goods and services sold outside the area). Dairy farms and milk processing plants directly employ 1,242 people, and these jobs in turn are estimated to support another 1,507 jobs.

Despite this economic importance, a large number of farms discontinued dairying between 1985 and 1995, and local milk processing plants struggled to maintain volume. Hoping to reverse this trend, local leaders initiated a Dairy Business Retention and Expansion (Dairy BR&E) Program in 1995, with the support of the Minnesota Extension Service.

The primary goal was to join community and agribusiness leaders with dairy farmers to help strengthen the area's dairy industry. An initial step was to interview dairy farmers to learn about their concerns, information needs and future plans. This led to the development of an action plan.

Strategic Planning Process

The Dairy BR&E Program is more than a survey or a research project, although both are important aspects of the program. It is a strategic planning process that identifies the concerns of dairy producers, develops alternative strategies for local leaders to respond to these concerns, builds a consensus on specific projects, and then moves to implementation.

The pivotal group in any BR&E effort is the local leadership team. In the Becker/Otter Tail program, this team recruited a 74-person task force that included dairy producers, agricultural suppliers and professionals, agriculture lenders, utilities, and economic development professionals and extension personnel. An estimated 1,725 hours, valued conservatively at more than $34,000, were devoted by these volunteers.

After the interview results were summarized, a campus meeting was held to review the data. Thirty-five university faculty, state department of agriculture staff, agribusiness leaders, and farmers participated in this three-hour session. Five university people prepared a research report summarizing the survey results and suggestions from this meeting.

These results were presented to the local task force in a subsequent four-hour mini-retreat. The group debated the implications of the findings and the suggested projects. The local leaders adopted modified forms of six of the campus review panel suggestions and developed two original projects. This was followed by public meetings to share the survey results and to announce the group's priority projects.

Strategies and Projects

Strategy 1: Make existing dairy herds more profitable

One-third of the surveyed producers were not sure they would be in milk production three years from now. Their exit would reduce production by 6.3 million pounds per year in the two counties. It was the operators of larger farms who reported they were likely to expand. Almost all that were uncertain cited low profits as the primary reason they might exit.

On the other hand, more than one-half of all those surveyed expected to enlarge their operation or were at least considering it. Almost two-thirds of those intending to expand would hire additional labor. Therefore, in-

creasing profitability (e.g., through higher productivity, better cost control, expansion, etc.) was a key retention issue. Four projects were selected to address this first strategy.

Project 1: Provide educational programs on business planning

Information on business planning was the most frequently requested item for producers who were uncertain about continuing in the dairy industry and the third most-requested item for those continuing their operations. Furthermore, 28 percent of those planning to expand indicated that the development of a business plan would be a challenge to them. The local task force sponsored several activities to address these concerns, including:

- Individual business plan consultations for dairy producers by extension educators.
- Sessions of Minnesota Extension Service "Benchmarks for Profitable Livestock Systems" for dairy producers.
- A conference aimed at building a financial network for the area's dairy industry and distributed information on the SBA 504 loans.

Project 2: Encourage all types of profitable dairy operations

The task force found that to maintain the existing local dairy infrastructure (processing plants, input suppliers, veterinary services, etc.), area milk production must be increased. Since no single approach for increasing local milk production (e.g., increasing output per cow, increasing existing herd size, or attracting new large herds) was adequate, the task force encouraged local officials to provide the same opportunities and assistance to both new and expanding operations.

Project 3: Establish dairy diagnostic teams

The task force decided to establish dairy diagnostic teams to handle the concerns of individual producers. Each team would include a veterinarian, a feed dealer or nutritionist, an agricultural lender, a Minnesota Extension Service educator, and other dairy professionals. Each team would also include the farmer's entire involved family. The team would take a whole-farm approach to the identification of opportunities for improving the farm's profits and income. A committee is preparing a funding proposal to initiate this program.

Project 4: Establish a dairy reception group for new dairy farms

Recognizing that small- to medium-sized dairy farms would benefit from additional milk production in the region, the task force formed a reception group to host individuals or firms interested in establishing new dairy farms. Members of the task force helped establish the Tri-State Dairy Group, covering portions of North Dakota, South Dakota and Minnesota. The group met monthly in 1996, with a number of meetings attended by the commissioners of agriculture from the three states. The group prepared a promotional campaign to lure dairy operations from New Mexico and California. Thus there is an element of "industrial recruitment," but it is just a small part of the strategy.

Project 5: Hire a full-time dairy specialist

Implementation of a number of these recommendations will require time and expertise not now available locally. While volunteers are essential to many of these initiatives, they also require an experienced, well-trained professional who can quickly provide unbiased expertise and information. The

task force developed a way to provide a full-time dairy specialist for these two counties.

Strategy 2: Link Dairy Industry with Regional Economy and Environment

Project 6: Develop balanced planning and zoning regulations

The Minnesota Department of Agriculture has developed a model of county guidelines for feedlot ordinances, and the task force is working with that department and the Minnesota Pollution Control Agency on county options for such regulations. The task force encouraged the development of balanced planning and zoning laws that protect both the dairy and the tourism industries.

Strategy 3: Address Labor Shortages and Management Issues

The average dairy farm in these two counties employs 2.3 people on a full-time equivalent basis. Two-thirds of the dairy farmers reported either no weekends off or less than one weekend per month. While 19 percent of those farmers said they were satisfied, the rest are exploring ways to obtain more time off. Additional non-farm income was important to almost one-third of the farms. Eleven percent of the operators and 36 percent of the spouses worked full-time off the farm. For those expecting to expand, information on labor management was the second most frequently requested type of information. About one-fifth of those expecting to expand also anticipate difficulty recruiting labor.

Project 7: Provide workshops on legal/procedural aspects of hiring and employee management

The task force developed a series of educational programs on effective methods of advertising and screening job applicants, employee management skills, building good labor/management relations, and legal aspects of hiring new employees.

Benefits and Results

A critical part of the process led to a redefinition of the problem--from that of a shortage of milk to a shortage of agricultural labor. An integrated approach, where the community of interest (dairy farmers) and the local community worked together, drawing wide and permeable boundaries, saved an industry, increased local incomes, increased knowledge and skills, and increased communication and linkages among all involved.

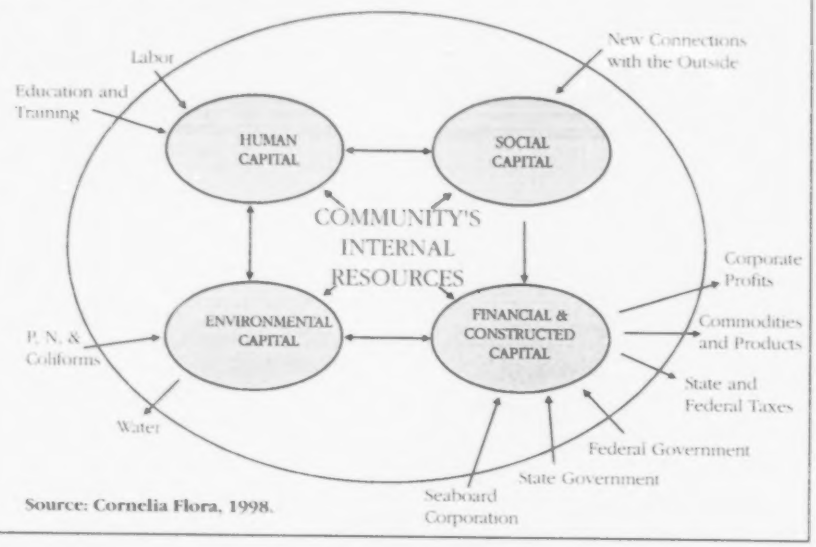
Since Becker and Otter Tail counties began this program, the dairy industry in the area has developed a more positive "can do" attitude. There have already been some tangible results. Three farms have adopted new technology, and more than $3 million in dairy facility improvements have been initiated. Two new large herds in eastern South Dakota have added more than 3,000 new cows to the region, reversing the downward trend in cow numbers in the milk shed.

Analysis

When the three alternatives to industrial recruitment are examined there is a substantial difference in the way that local communities assess and use local resources. Texas County is represented in the Resource Flow Diagram. A systematic analysis of the existing resources--including ALL the capitals--is the first step in deciding how to recombine the existing resources and mobilize new ones from outside the community to create the more desirable future. Too often, industrial recruitment takes place without the vision that allows for laying out alternatives and analyzing them. Instead, industrial recruitment--doing whatever it takes to get one particular branch plant--seems the ONLY alternative. Once that decision has been made, other alternatives, which might make better use of local resources and in fact enhance all the community capitals, are eliminated. And once an industry comes with major impacts on human, social and environmental capitals, other alternatives may in fact be limited.

It is informative to compare the cases of the recruitment of Seaboard Corporation to Guymon and the self-development effort that led to the success of the Iowa Turkey Growers Cooperative and West Liberty Foods. In Guymon, the closing of one outside-owned industry (beef packing), which was supplied by an already produced local commodity, led to the recruitment of another outside owned commodity processing industry--for a commodity not produced in the immediate area. While that provided opportunities to diversify the economy and create financial and constructed capital, the implications for the other capitals did not seem to be considered.

Resource Flow Diagram



Source: Cornelia Flora, 1998.

In the ITGC case, the community and the growers took a close look at the resources each brought to the table. Further, they defined the community broadly, not just the town of West Liberty or Muscatine County, but the entire section of Southeast and Central Iowa in which the growers were locating. Thus, they were able to look at the resources that came from that broader area of Iowa, including the inputs for turkey growing and the inputs for turkey processing. The ITGC understood that the existing skilled labor force was one of their primary resources that they wanted to guard and cultivate. Their strategy was one of working with all those resources in new ways.

They considered a wide variety of alternative ownership structures, including trying to bring in another outside corporation. However, after systematic discussion based on the desired future for the community and the turkey growers, they determined the cooperative form, particularly with a new law passed in Iowa supporting closed cooperatives, was the most desirable.

Communities considering industrial recruitment or making major changes in their economic base need to consider alternatives at various stages in the process. For if alternative ways of increasing community economic vitality are not considered, the end becomes the recruitment of the company rather than building the community.

Communities could still choose industrial recruitment but there would be a wider realization of how local resources would be used. For example, key questions could be addressed about the available labor force and what that available labor force is currently doing. What about our community would attract workers with the appropriate skills? Who will fill the jobs created? What is our realistic labor pool? From how wide an area will we recruit workers? Where will they live? From how wide an area will we recruit those who grow the basic input for our factory? What new public services are needed to support the new employees? What are the environmental implications of the new production technologies?

Answering these questions is critical for ensuring that economic development includes community development. Outside corporations may be a part of the mix, but the consideration of alternatives and the potential impact on the various capitals is critical.

...if alternative ways of increasing community economic vitality are not considered, the end becomes the recruitment of the company rather than building the community.

Both Seaboard Corporation and West Liberty Foods required enormous inflows of capital--public and private. The difference between what happened to the inflow of resources is instructive. The inflow of resources has helped support corporate profits in the Texas County case, whereas, the earnings in West Liberty will go to the grower/owners in that part of Iowa.

Meat processing has serious environmental consequences, that need to be taken into account. Both of these processing plants are state-of-the-art in their adherence to environmental quality regulations. At the plant, the negative impact on the environment is at least remediated through public and private investment. Turkey raising creates less manure than hogs, but manure disposal that ensures air, soil, and water quality is a challenge in both industries. However, the scale of operation is much less in southeast Iowa than in Texas County.

In the West Liberty case, local institutions are less disruptive and the very process of

putting together the cooperative and the West Liberty Foods built social capital both within the community. These connections, in turn, have furthered other entrepreneurial activities within the area. On the other hand, the manner in which Seaboard was recruited in Guymon decreased social capital within the county and has some very serious implications for quality of life for the residents of that county. The forward and backward linkages have so far been quite limited.

Conclusion

by The Kerr Center

The lesson of Texas County and Seaboard Farms is that public incentives when used wisely can build a community. When used unwisely, they can destroy it. The entrance of the hog industry into Texas County has polluted the community. It has polluted the community with an odor. It has polluted the community with polarization of people who were once friends. It has polluted the community with waste by-products that threaten the soil and the water. It has polluted the community with schools that are more crowded. It has polluted the community with jobs that appear to cost more to support that they return in wages. And it has polluted the future of the community, as young people must decide either to work in the hog farms, coexist with the hog farms or move away.

And who has benefited from the state, county and local incentives that lured Seaboard Farms to the area? Certainly not the taxpayers who must fund the rebates given. Certainly not the school children whose schools see no direct benefit from corporate taxes but do feel the pinch of additional students. Certainly not the wage earners who moved in to earn a wage that was lower than the average wage in one of Oklahoma's most fully employed areas. Certainly not the law enforcement officers whose jobs suddenly became more dangerous. The main beneficiaries of the agreement between Texas County and Seaboard Farms are the stockholders of Seaboard Farms.

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